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EXTRA ORDINARY, PART-I

National Electric Power Regulatory Authority

NOTIFICATION

Islamabad, the 4th day of December, 2024

S.R.O. 1988 **(I)/2024.-** In pursuance of Sub-Section 7 of Section 31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997), NEPRA hereby notifies the Decision of the Authority dated October 22, 2024 in the matter of Tariff Petition filed by K-Electric Limited for Power Generation Plants in Case No. NEPRA/TRF-596/K.E (G.T)/2022.

2. While effecting the Decision, the concerned entities including Central Power Purchasing Agency Guarantee Limited (CPPAGL) and K-Electric shall keep in view and strictly comply with the orders of the courts notwithstanding this Decision.

Wasim Anwar

(Wasim Anwar Bhinder)
Registrar

DETERMINATION OF THE AUTHORITY IN THE MATTER OF TARIFF PETITION FILED BY K-ELECTRIC LIMITED FOR POWER GENERATION PLANTS

1. INTRODUCTION

1.1. K-Electric (KE) (Petitioner) is the only vertically integrated utility in Pakistan. The company was privatized in November 2005 and is responsible for end-to-end planning and execution of generation, transmission, distribution and supply of power to its customers within its service territory which includes Karachi, Gharo in Sindh and Hub, Uthal, Vinder and Bela in Balochistan region. The last multiyear tariff was determined on March 20, 2017. Motion for leave for review in the matter was decided on July 05, 2018. The multiyear tariff control period ended on June 30, 2023.

2. FILING & ADMISSION OF TARIFF PETITION

2.1. KE vide letter dated December 01, 2022 filed tariff petition for its generation plants for the period commencing from July 01, 2023 till remaining licensed useful lives of respective plants/units. Salient features of the petition are as hereunder:

i. KE has proposed following tariff for its generation facilities:

Plant	Net Capacity (MW)	Fuel	Fuel Cost Component (Rs./kWh)			Variable O&M (Rs./kWh)		Capacity Charge (Rs./kWh)	
			RLNG	HSD/ HFO	Gas	RLNG	HSD/ HFO	RLNG	HSD
BQPS-I:									
Unit 1	168.32	RLNG/HFO	37.07	35.69	9.62	0.24		2.81	
Unit 2	171.62	RLNG/HFO	36.78	35.56	9.55	0.21			
Unit 5	175.90	RLNG/HFO	35.64	34.33	9.25	0.17			
Unit 6	177.24	RLNG/HFO	36.97	34.97	9.60	0.27			
BQPS-II	494.53	RLNG/HSD	27.25	48.73	7.07	0.44	0.79	4.12	4.40
KCCP	220.83	RLNG/HSD	26.99	48.00	7.01	1.21	1.67	4.61	4.63
KGTPS	92.05	RLNG	29.83	-	7.75	1.41	-	2.48	-
SGTPS	92.73	RLNG	29.92	-	7.77	1.48	-	2.89	-
BQPS-III:									
Unit 1	449.80	RLNG/HSD	18.56	40.99	-	0.27	0.42	3.93	4.94
Unit 2	449.80	RLNG/HSD	18.56	40.99	-	0.27	0.42	4.06	5.11

ii. The Petitioner has requested two part tariff i.e. energy component on unit delivered basis and capacity component on take or pay basis.

iii. Capacity component include Fixed O&M, Insurance, Cost of Working Capital, Depreciation and Return on Regulatory Base.

iv. The fuel cost component is based on RLNG price of PKR 3,300.82 /MMBTU and Rs. 2,929.79 /MMBTU for BQPS-II, Gas price of Rs. 857/MMBTU, HSD Price of Rs. 219.94 /litre and HFO price of Rs. 137.701/M.ton.

v. The Petitioner requested dollar based return of 15%

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vi. The Petitioner has requested cost of debt along with hedging cost on the basis of 3 months LIBOR +4.5% for foreign component on and 3 months KIBOR +2.5% for local component

vii. Debt to equity ratio of 70:30 is proposed.

viii. The Petitioner has also requested fuel cost component on simple cycle operation

ix. The Petitioner has requested adjustment on account of partial load, degradation, ambient temperature, start-up cost etc.

x. The Petitioner has requested fuel price adjustment on monthly basis, insurance on annual basis and remaining tariff components on quarterly basis on account of exchange rate, US CPI, local CPI, KIBOR/LIBOR etc.

xi. The Petitioner assumed Exchange rate of Rs. 206/USD.

2.2. The Authority admitted the subject petition on February 02, 2023. Notice of Admission was made public on February 03, 2022 inviting comments/interventions from general public. Individual notices were also sent to stakeholders on February 06, 2023 inviting comments/interventions.

3. COMMENT & INTERVENTION OF STAKEHOLDERS

3.1. In response to the notice of admission and individual notices, comments received from various stakeholders are summarized hereunder:

Sr.	Commentator/Intervener	Comments
1	Educast (Intervener)	• Appreciated K-E for its CSR initiatives
2	S.I.T.E Superhighway Association of Industry Karachi. (Intervener)	• Continue "Take or Pay" tariff model • Supported must-run model
3	Syed Raza Hussain, Hussain & Co (Intervener)	• No comments were provided on the tariff petition
4	Chairman Ittehad Mohallah Committee Korangi	• Appreciated the various CSR initiatives taken by K-E and requested to allow KE to make the required investments to further help in generation of affordable power
5	Roshni Research & Development welfare Organization	• Appreciated positive contribution of KE to the community and requested to accept the KE petition
6	SITE Association of Industry	• Requested to allow 45 days for comments on the tariff petition
7	Bin Qasim Association of Trade & Industry	• Appreciated that transparency and clarity provided in the public notice to enable them to compare the cost of electricity production on various fuels • Also advocated the provision of cheaper indigenous gas.
8	Federal B. Area Association of Trade & Industry	• Power generation through indigenous gas can significantly reduce the cost of electricity and will bring tremendous reduction in the ever-rising fuel charges adjustment

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Sr.	Commentator/Intervener	Comments
9	Pakistan People's Party	• Appreciated KE for their work and requested to facilitate them with the due process so that they can continue the good work
10	Korangi Association of Trade & Industry	• Endorsed tariff petition filed by KE • Provision of indigenous gas should be prioritized so that KE should reduce its generation cost • Supported "Take or Pay" tariff model • Supported higher margin for hedging • NEPRA should analyze benefit of hedging versus payment at actual exchange rate • NEPRA should build a mechanism for sharing savings if in future situation normalizes. • Supported 15% dollar based ROE • NEPRA should find a reasonable ground against the request of KE in respect of must run operations of power plants.
11	Gharo Solar Limited	• Requested to determine KE's tariff petition in line with comparable generation tariff determination and allow justified costs and assumptions with reasonable returns
12	Orangi Traders Association	• Tariff should be on "Take or Pay" model in line with IPPs • Must-run model should be adopted • Already allowed returns to KE should be continued

3.2. In addition to the above, comments were also received from following commentators. KE vide letters dated February 26, 2024 submitted rejoinder to these comments. The comments of stakeholders and KE's reply is provided hereunder:

Comments	KE's Rejoinder
Mr. Arif Bilwani	
• The Petitioner has based its petition on "expectations, estimates and projections". It has also assumed itself as an IPP on the basis of which it has made numerous demands, favors, benefits & concessions as are allowed to IPPs established under various policies of the GOP. Although it is a known fact that the Petitioner was privatized as an integrated power utility having all the 3 functions of generation, transmission and distribution with certain conditions in the shape of "Implementation Agreement" which was later on modified/amended as "Amended Implementation Agreement" allowing the Petitioner innumerable benefits and concessions. Both these agreements were kept as closely guarded secrets from the public eye for a number of years. • Besides many other conditions it was agreed that the Petitioner would establish/add 1,000MW of new generation capacity without any strings attached to it. Since then, it has set-up KCCP	• It is essential to highlight that copies of the implementation agreements as amended are accessible to all relevant stakeholders in accordance with law. Under the Implementation Agreement as amended, KE's investors were obligated to invest USD 361 Million, a commitment which has been duly fulfilled by KE's investors • At the inception of each individual plant within the Generation Fleet, meticulous planning and execution were undertaken based on the techno-commercial feasibility prevailing at that time. Consequently, these plants are set to remain integral parts of KE's fleet until the conclusion of their respective operational lifespans. Over time, they will be gradually phased out and replaced with new generation plants or integrated into interconnections. Additionally, it's important to emphasize that plants employing similar technology also exist under the NTDC (National Transmission and Dispatch Company) network.

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Comments	KE's Rejoinder
(247MW in 2008) KGTPS (107MW in 2009), SGTPS (107MW in 2009) & BQPS 2 (572MW in 2012). The new capacity was supposed to be funded by the Petitioner itself through equity Injection and through raising debt on its own without any Sovereign Guarantee. Neither was there any clause for US$ based return on Equity or RAB or any condition for Rupee based &/Or Dollar based CPI or any other form of indexation on any item • All the above-mentioned plants are 11 to 15 years old and their long-term debt has almost completely been extinguished. All these plants, as per NEECA standards of efficiency, are inefficient and obsolete and are not only a burden on national resources but are also a burden on consumers in the form of additional tariffs. Instead of running them the Petitioner must seek all its requirements from NTDC/CPPA from where it can have much cheaper power. This will not only solve most of the issues framed for the hearing but will make it easier for the Authority to determine tariff • It is requested that besides in house scrutiny of the petition by the staff of the Authority it should also be vetted by independent consultants/experts so as to have an independent opinion. As has been expressed by me in my comments on Tariff petition by KE for its Transmission & Distribution Business that the tariff be set on yearly basis as has been in vogue for the last more than 20 years in the Gas sector utilities viz. SSGC & SNGPL, by the Authority OGRA and that it should Be Fixed Return Tariff on Net Asset Basis as is prevalent in that sector	• NEPRA's tariff determination process considers not only the Petitioner's request but also incorporates the prevailing practices observed across other power sector entities in the country, as well as principles of equity and fairness and to ensure prudent recovery of costs. Consequently, KE's tariff may also be determined (post FY23) in alignment with these principles. This includes aspects such as continuation of the allowed USD-based return, CPI (Consumer Price Index) indexation, and other related matters. These considerations ensure a comprehensive and equitable approach to tariff determination, reflecting the evolving dynamics of the energy sector while maintaining fairness and transparency. • KE has engaged a consortium comprising OMS and Ernst & Young (EY) as an Independent Consultant tasked with reviewing the O&M Costs requested in the Tariff Petition submitted to NEPRA. Accordingly, the Consultant has reviewed the O&M numbers requested by the Company including benchmarking of the same. The report of their findings has been submitted to the Authority along with the Generation Tariff Petition for their consideration • In accordance with best practices, tariffs are typically determined in alignment with the expected useful life of the asset. It is standard procedure within the power sector for tariff tenures to correspond with the useful life of the plant, which commonly ranges between 25 to 30 years. Furthermore, establishing a tariff period for a reasonably certain duration ensures stability of returns, which is pivotal for the financial feasibility of the project. This approach promotes transparency, predictability, and long-term sustainability within the power sector.
Arzachel Pvt. Ltd.	
• Has KE applied for new Distribution Network and Electricity Supply License? • Has KE provided separate manpower allocation details for each 4 segments of business? • Has KE submitted separate details of assets allocated to each 4 segments? • Will KE "Electricity Supply Company" have bilateral contracts with KE "Generation Company"? • Are these contracts (between KE Generation and KE Supply Company) will be treated as legacy contracts as defined in CTBCM model?	• KE has been granted renewed Distribution Network and Supply Licenses by the Authority with a validity extended up to a further 20 years (i.e. till 2044). For allocation of assets and employees, IKE has provided details of RAB (Regulatory Asset Base) to the Authority for each Business Segment, i.e. Generation (given at plant level), Transmission & Distribution. Furthermore, details of manpower expenses have also been submitted to the Authority during tariff proceedings. Moreover, bilateral contracts between KE Generation & KE Supply Company, KE has already filed Head of Terms for

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Comments	KE's Rejoinder
• Will KE "Generation Company" and "Supply Company" have Connection Agreements with "KE Transmission" & "KE Distribution" companies? • Will all these companies have "Market Participation Agreement" with CPPA? • BQPS-1 – No dollar indexation and 13% return considering dollar @ 170 Rupees • BQPS 2 – No indexation and 13% return considering dollar @ 200 Rupees • KTEPS, STEPS & KCCP – No indexation and 13% return considering dollar @ 200 Rupees • BQPS -3 – 50% annual indexation and 13% return considering dollar @ 250 Rupees • There should be a Take and Pay mechanism for the plants that have completed their debt payment period and only partial capacity cost can be allowed • Useful life of Unit 1, 2 & 5 of BQPS-1 has lapsed • Depreciation charge on capital investment in Unit 1 & 2 should not be allowed due to delay in commissioning of BQPS-3 • Spares and parts of decommissioned units can be used in other units • BQPS-1 can be treated as Merchant Plant • Real Debt-Equity ratio should be considered • For depreciation, life and capital investment of each plant should be vetted • Only one time shutdown and startup cost should be allowed in a year • Schedule outage, Maintenance outage, Forced outage days should be reconsidered • For O&M sharing mechanism – There should be upper CAP on allowed expenses • For older plants, O&M indexation should be biannually as in case of TPS-Jamshoro & Muzafargarh • NPERA should examine LTSA/LSA to verify foreign O&M • O&M cost of BQPS-2 seems higher than Uch-II, EPQL and Nandipur.	proposed SLAs to be entered in to between the Generation & Supply businesses post determination of tariff by the Authority. Furthermore, regarding the comments concerning Legacy Contracts and Market Participation Agreements, IKE would like to affirm that these matters are already incorporated within the CTBCM proceedings. They will be addressed in accordance with the relevant proceedings for CTBCM with the Authority • The proposal to reduce already awarded dollar based IRR has no basis as KE is a privatized entity and the Authority has not revised downward the USD based return of all other IPPs, except those which renegotiation with Government which is not relevant in case of KE. KE has already explained in detail the response to this observation vide letter dated 24th July 2023 • Take & Pay Tariff has been requested by the company as it ensures recovery of all operational costs which are integral for continued Plant Operations and consequently should be allowed by the Authority. Moreover, the proposition concerning the Take & Pay Tariff for plants with repaid Long Term Debts lacks accuracy when applied to KE. This discrepancy arises from the fact that the preceding Tariff Structure of RE factored in the recovery of such costs within the tariff through depreciation, distributed over the lifespan of the plant. Consequently, it remains that the entire cost has yet to be recouped under the tariff structure • Licensed life for Units 1 & 2 of BQPS-I is till the end of September 2023 and accordingly the same have been decommissioned post September 2023. Similarly, licensed life of Unit will expire on September 2026. Accordingly, RE has only requested Capacity Charges against these till the end of their licensed lives only. Regarding spares, the dismantled items from Unit 1 & 2, any usable spares from the same will be utilized accordingly. Furthermore, the concept of Merchant Plant is not applicable in case of KE as it operates as a Supplier of Last Resort under the license. • KE has shared detailed workings of the same as part of the End Term Review Adjustment for the Authority's consideration vide letter KE/BPR/NEPRA/2023/280 dated 9th October 2023. • O&M requirements have been worked out keeping in view the technical standards and have been independently validated by EY and OMS which are internationally reputed consultants. Further, the

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Comments	KE's Rejoinder
	same has been benchmarked with historical trends as well as similar technology IPPs where applicable Regarding O&M Sharing Mechanism, KE has already proposed a mechanism in the relevant tariff petitions and no separate capping is required • The proposal to restrict One-Time Startup & Shutdown Costs lacks a valid foundation, as Plant Operations are overseen by the System Operator based on Economic Merit Order (EMO). Any expenses incurred during the startup of the plant are genuine and should be permissible. Concerning shutdown costs, RE has already clarified during the hearing that these costs may not be separately considered • Regarding, availability targets for plants, KE has submitted detailed schedule of outages and requests the same to be allowed. Moreover, for BQPS-III, KE has submitted detailed outage allowance request supported by OEM, EPC & Owner's Engineer through letter dated 15th Jan 24 and request honorable Authority's kind consideration in this regard.

4. ISSUES FRAMED FOR HEARING

4.1. Following issues were framed for the hearing:

i. Whether the requested tariff on Take or Pay basis is justified?

ii. Whether the requested tariff control period is justified?

iii. Whether the request to allow all plants as must run for Economic Merit Order under Take or Pay Gas Supply Agreement is justified?

iv. Whether the requested outage period is justified?

v. Whether the requested heat rates and net capacity is justified?

vi. Whether the requested adjustment on account of part load, degradation and ambient temperature is justified. Whether the requested Curves on such account are justified?

vii. Whether the requested fuel cost components of each unit is justified?

viii. Whether the requested variable O&M cost component is justified?

ix. Whether the requested fixed O&M cost component is justified?

x. Whether the requested insurance cost component is justified?

xi. Whether the requested Regulatory Asset Base is justified?

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xii. Whether the requested Debt-Equity ratio of 70:30 is justified?

xiii. Whether the requested Dollar based Return on Equity of 15% is justified?

xiv. Whether the requested Cost of Debt including Hedging Cost is justified?

xv. Whether the requested Depreciation is justified?

xvi. Whether the requested Cost of working Capital is justified?

xvii. Whether the requested Pass-Through Items are justified?

xviii. Whether the requested Startup/Black Start/Shutdown Charges are justified?

xix. What will be the mechanism to ensure availability of each plant?

xx. What will be the adjustment mechanism for over recovery due to settlement of imbalances under CTBCM?

xxi. Whether a clawback mechanism is required to be included in the tariff?

xxii. KE to provide status of investment allowed for generation in previous Multi Year Tariff along with benefits achieved.

xxiii. What will be the treatment of the Residual Value of the power plant?

xxiv. Any other relevant issue arising during the proceedings.

4.2. Hearing in the matter was held on May 02, 2023. Notice of Hearing was made public on April 16, 2023.

5. CONSIDERATION OF VIEWS OF THE STAKEHOLDERS, ANALYSIS AND DECISION ON FRAMED ISSUES

5.1. The issue wise submissions of stakeholders, discussion, analysis and decision are provided in succeeding paragraphs

6. WHETHER THE REQUESTED TARIFF ON TAKE OR PAY BASIS IS JUSTIFIED?

6.1. According to KE, it is requesting a two-part tariff in line with IPPs i.e. Take or Pay mechanism where capacity payments shall be paid for the available capacity and energy payments for the net electrical output.

6.2. KE vide letter dated May 16, 2023 submitted that the generation plants were installed keeping in view demand requirements of KE's service territory and are required to be maintained accordingly till the end of the useful lives as per the Generation License awarded by NEPRA. These plants will be dedicatedly available to serve demand of consumers within KE's service area.

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6.3. According to KE, take or pay structure ensures recovery of the fixed costs, which is essential to maintain the availability and reliability of the plant as well as to facilitate reasonable returns. Moreover, within the current MYT, components such as Return on Regulatory Asset Base, depreciation and O&M Costs are not linked with actual dispatch, similar to take or pay mechanism. In view of the above, the tariff based on take or pay mechanism is justified as it is consistent with IPPs and the past precedent followed by NEPRA.

6.4. The submissions of KE and commentators have been examined. The Power Policies provide two part tariff i.e. Energy Purchase Price and Capacity Purchase Price for thermal power plants. The EPP will be paid based on kWh delivered at the point of delivery. The CPP will be paid provided the plant is made available for dispatch by the company as per the standards defined in the PPA.

6.5. "Take and pay" tariff model is sustainable on or above breakeven point where fixed costs are recovered (variable costs are recovered at all levels). Below breakeven point, the operation of the plant is not sustainable and above that point means the operation of the plant is profitable. A strong case exists for operation of plant on take & pay basis where useful life of the plant is completed e.g. Units 1&2 of BQPS-I, or for merchant plants. Otherwise, achieving financial viability under a "take and pay" regime can be challenging, as seen with government owned GENCOs. Given the life of plants of KE are remaining, it is not prudent to change the tariff structure from 'take or pay' to 'take and pay' basis.

6.6. Another point to note that although the generation plants in K-Electric's system, excluding BQPS-III, have completed their debt repayments, they have not received the corresponding amounts through tariffs. This is due to the differing tariff structures approved for these plants compared to those for IPPs. In the case of IPPs, the approved tariff is front-loaded, ensuring that debt payments are made in the early years of operation, coinciding with the period when project companies make these payments. Conversely, the tariffs for K-Electric's generation plants are based on depreciation, which does not align with the timing of their debt repayments. With the tariff structured on take-and-pay model, K-Electric will be unable to recover not only their debt repayments but also the other costs required for operating the power plants.

6.7. It was also deliberated that the generation plants in K-Electric's fleet, excluding BQPS-I, have a substantial amount of useful life remaining. The decision of premature retirement/decommissioning of these plants would necessitate the immediate payment of all associated costs, imposing a significant financial burden on consumers.

6.8. Additionally, it is noted that capacity payments are directly linked to the availability of plants, which can be managed either on primary or backup fuel. Tariff structures are designed on primary and backup fuel to ensure continuity and security of power supply in the consumer interest. IPPs are allowed to recover capacity costs when they are available either on primary or backup fuel. For instance, during gas supply issues, availability is managed by power plants on HSD fuel to be entitled for capacity payments. Likewise, during low-demand periods, ordering RLNG with take or pay commitment solely to maintain plant availability may not serve consumer interests, thus, plant availability is maintained on HSD as a backup fuel.

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6.9. Considering the above factors, the Authority has decided to approve the tariff on Take or Pay basis to the KE power plants on all fuels including HSD. The responsibility of fuel arrangement shall be on KE. In case KE is unable to make the plant available for dispatch due to any reason, including but not limited to non-availability of fuel, capacity payment shall not be allowed.

7. WHETHER THE REQUESTED TARIFF CONTROL PERIOD IS JUSTIFIED?

7.1. KE submitted that currently KE operates under an integrated multi-year tariff which has been awarded by NEPRA for a control period of 7 years, valid till June 30, 2023. However, going forward to align tariff structure with ongoing changes in power sector including implementation of CTBCM model and proposed country wide central economic dispatch, KE is moving from an integrated tariff to unbundled generation tariff with separate plant wise tariffs

7.2. KE requested tariff control periods based on remaining licensed life of each unit which is provided hereunder:

Power Plant	GL Expiration	Remaining Useful Life
BQPS-I:		
Unit-1	September 2023	03 Months
Unit-2	September 2023	03 Months
Unit-5	September 2026	03 Years
Unit-6	September 2032	09 Years
BQPS-II	October 2042	19 Years
KCCP	August 2039	16 Years
KTGEPS	August 2039	16 Years
SGEPS	August 2039	16 Years
BQPS-III:		
Unit-1	30 Years from COD	30 Years
Unit-2	30 Years from COD	30 Years

7.3. The submissions of KE have been reviewed. The remaining useful life of each unit is in line with the generation license awarded by the Authority.

7.4. However, the Authority is mindful of the fact that the issue of control period has far reaching impact on the capacity payments. A project with 30 years take or pay tariff means that consumers will pay capacity charges irrespective of actual plant operation for the tariff control period.

7.5. With the completion of KKI/NKI grids, proposed arrangement of additional power from national grid and proposed new wind/solar projects, KE will be in a better position to supply electricity and the requirement for its existing plants may become obsolete. Therefore, the Authority has decided to approve control period of 07 years or remaining useful life as on 1st July 2023, whichever is lower, for all plants except BQPS-III where the control period shall be 11 years (till completion of debt servicing). Upon expiry of the respective control periods, KE may approach NEPRA for extension of the control period in the manner prescribed in

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law, rules and regulations. The tariff beyond approved control period is indicative only and shall be subject to extension of control period.

8. WHETHER THE REQUEST TO ALLOW ALL PLANTS AS MUST RUN FOR ECONOMIC MERIT ORDER UNDER TAKE OR PAY GAS SUPPLY AGREEMENT IS JUSTIFIED?

8.1. According to KE, it is currently sourcing gas from SSGC, while also exploring alternate RLNG supplies to meet its gas requirements, as SSGC is unable to consistently provide the necessary gas volume/pressure as per the requirements of the plants. Moreover, KE submitted that agreements with RLNG/ Gas supplier (existing / future) may involve "take or pay" arrangements, for which there will be a need to ensure regular payments for fuel charges as per the gas supply agreements, regardless of plant operations. Accordingly, KE has requested the Authority to either allow these costs as pass-through in the proposed tariff or to classify the plant as a must-run under "take or pay" gas arrangement for the economic merit order.

8.2. In a letter dated May 16, 2023, KE clarified that it is not requesting all plants to be classified as must-run at all times. Instead, KE has requested that in cases where an agreement for the supply of RLNG includes a condition of minimum off-take, those specific plants should be designated as must-run up to the extent of the minimum off-take requirement.

8.3. KE further submitted that it has an agreement with Pakistan LNG Limited (PLL) for BQPS III plant, effective until December 2025, which is based on a take or pay mechanism requiring a minimum off take of 75% of contract quantity for the Annual Delivery Plan, with daily binding obligations for the notified quantities. Additionally, KE is considering long term supply agreements post expiry period of current BQPS-III gas agreement and is also evaluating alternative gas supply agreements for its other plants.

8.4. According to KE, RLNG agreements are based on minimum off take requirements, hence, plants will have to be operated to meet such requirements. Any such agreement will be done keeping in view the demand profile to ensure maximum optimization and will be submitted for regulatory approval. Accordingly, in order to avoid any undue penalties or charges, that will otherwise be applicable under take or pay obligations during the times when the plant is not required to be operated as per the Security Constrained Economic Despatch principle, must run operating condition will be required to be considered for that time period only. Stating above, KE requested the Authority to allow the 'take or pay' provision for the RLNG supply.

8.5. The submissions of the Petitioner have been reviewed. KE has an existing RLNG Supply Agreement with PLL under take or pay arrangement for its 900 MW BQPS-III power plant since August 2021. This agreement covers the supply of RLNG up to December 2025. The take or pay arrangement means that KE is exposed to the possibility of paying the price differential for a certain volume of gas which it has not consumed/off taken and has been diverted to some other sectors.

8.6. It is noted that 'take or pay' arrangements are essential components to secure RLNG supply, providing a mechanism for risk allocation, supply assurances, and flexibility for buyers. In Pakistan, long-term LNG supply agreements entered into by the GoP entities are also on 'take

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or pay' basis Further, it is seen that internationally as well, 'take or pay' is a standard clause in energy contracts, adding to the long-term success of energy projects as it has a direct bearing on the RLNG pricing as well as security of supply.

8.7. Whilst it may be beneficial to enter into a long term RLNG Supply Agreement (to secure the required quantity and to avoid price volatility), and that in the current scenario, it may not be possible for KE to have done so without a minimum take or pay arrangement, there is no reason to shift the risk matrix at this stage given that prior to signing the 'take or pay' condition in the RLNG Supply Agreement, KE did not seek NEPRA's approval. This suggests that before committing to the offtake of a specific amount of RLNG, KE had completed its requisite planning and due diligence on its expected consumption after conducting its demand-supply analysis, also taking into account the efficiency/merit order ranking of BQPS-III.

8.9 Keeping above in view, the Authority has decided not to allow 'take or pay' of RLNG under current arrangements. However, if there is an additional electricity supply from the national grid or the implementation of Central Dispatch, KE shall be exposed to undue risk of non-utilization of committed RLNG. Therefore, upon occurrence of either event, the similar mechanism of 4 large RLNG power plants shall be applicable. Additionally, KE shall ensure to commit the quantity of RLNG that allows for maximal feasible mitigation of the 'take or pay' provision, ensuring that it can be fully utilized in accordance with the economic merit order.

9. WHETHER THE REQUESTED OUTAGE PERIOD IS JUSTIFIED?

9.1. The Petitioner requested for annual outages of 10% for all plants except 15% in case of BQPS-I. Annual outages comprises of scheduled maintenance and forced outages. In addition to the annual outages, additional outages have also been requested on account of major/minor overhauls, inspections, sea water intake dredging/cleaning etc. The Petitioner requested following levelized plant factors after accounting for annual and additional outages and the same has been used for Variable O&M and Capacity components to cover the impact of outages:

Plant Name	BQPS-I	BQPS-II	BQPS-III	KCCP	KGTPS	SGTPS
Levelized PF	83.41%	88.41%	88.57%	88.66%	87.81%	87.64%

9.2. Particularly for BQPS-III, KE in a letter dated January 16, 2024 emphasized that the said plant operates with a single shaft configuration, where both the Gas Turbine (SGT5-4000F) and Steam Turbine (SST-3000) are connected to a common generator, which prevents independent operation. This design contrasts sharply with other RLNG plants like Haveli Bahadurshah and Bhikki and Balloki, which feature multi-shaft configurations allowing for separate turbine operation. KE also shared letters from OEM Siemens, Herbin Electric and consortium of Owners Engineers including NESPAK which confirms the above fact.

9.3. The submissions of the Petitioner have been reviewed. On the basis of technical parameters, the Authority has decided to approve following outage period for each plant:

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Power Plant	Outage Period
BQPS-I	15%
BQPS-II	10%
BQPS-III	10%
KCCPP	10%
KTGEPS	8%
SGEPS	8%

9.4. The Authority has also decided not to allow separate allowance for major overhaul as the same shall be managed within the above allowed outages in line with concept of saved hours prevailing in CPPA system.

10. WHETHER THE REQUESTED HEAT RATES AND NET CAPACITY IS JUSTIFIED?

WHETHER THE REQUESTED ADJUSTMENT ON ACCOUNT OF PART LOAD, DEGRADATION AND AMBIENT TEMPERATURE IS JUSTIFIED?

BQPS-I

10.1. The Petitioner proposed net dependable capacities and base load heat rates (HRs) of BQPS-I as determined in tests conducted in November 2019 by the Independent Engineer. The requested heat rates shall be subject to part load and degradation adjustments. In the last multiyear tariff, the Authority approved HRs on the basis of lesser load instead of base load to offset the impact of part load operation and with no further degradation. The comparison of requested and approved HRs are provided hereunder:

Category	Unit 1	Unit 2	Unit 5	Unit 6
Gross De-rated capacity – MW	181.2	183.41	188.28	191.03
Auxiliary consumption – MW	12.88	11.79	12.38	13.79
Net Capacity – MW	168.32	171.62	175.9	177.24
Auxiliary consumption %	7.11%	6.43%	6.58%	7.22%
Base load Net HHV heat rate – btu / kWh – Gas	11,231	11,143.1	10,798.4	11200
Base load Net HHV heat rate – btu / kWh – HFO	10,566	10,527.4	10,162.9	10,352.2
Approved net HHV HRs btu /kWh - Gas	11,525.38	11,277.32	11,277.25	11,666.64
Approved net HHV HRs btu /kWh – HFO	10,843.02	10,654.19	10,613.55	10,783.76

BQPS-II

10.2. The Petitioner requested net dependable capacities and base load HRs of BQPS-II as determined in tests conducted in 2018 by the Independent Engineer. The requested heat rates shall be subject to part load and degradation adjustments. In the last multiyear tariff, the Authority approved HRs on the basis of lesser load instead of base load to offset the impact of part load operation and with no further degradation. The comparison of requested and approved HRs are provided hereunder:

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Description	Gas Fuel			HSD Fuel		
	Combined cycle (2 compressors)	Combined cycle (1 compressor)	Combined cycle (no compressor)	Open cycle	Combined cycle	Open cycle
Gross De rated capacity – MW	525.584	525.584	525.584	345.76	480.00	325.50
Auxiliary consumption – MW	31.052	22.509	13.967	19.88	16.55	6.08
Net Capacity – MW	494.532	503.075	511.617	325.88	463.46	319.42
Auxiliary consumption %	5.91%	4.28%	2.66%	5.75%	3.45%	1.87%
Heat rate btu / kwh	8,255.26	8,115.07	7,979.57	12,311.06	8,031.40	11,738.19
Approved net HHV HRs btu/kWh	8,380.73	8,238.42	8,100.86	-	-	-

10.3. The Petitioner further submitted that the capacity & heat rate at open cycle on Gas has been calculated from the 3rd party combined cycle test result, whereas capacity & heat rate on HSD (combined cycle and open cycle) have been estimated. Further, Heat rate and capacity on HSD shall be adjusted based on test at the time of HSD commissioning. Accordingly, relevant reference tariff components shall be adjusted.

KCCPP

10.4. The Petitioner requested net dependable capacities and base load HRs of KCCPP as determined in tests conducted in September 2019 by the Independent Engineer. The requested heat rates shall be subject to part load and degradation adjustments. In the last multiyear tariff, the Authority approved flat HRs on the basis of degradation adjustment indicated by IE and 85% load (gas/RLNG) instead of base load to offset the impact of part load operation. The comparison of requested and approved HRs are provided hereunder:

Category	Gas fuel			HSD fuel	
	Combined cycle (3 Compressor)	Combined cycle (no Compressor)	Open cycle	Combined cycle	Open cycle
Gross De rated capacity – MW	237.078	237.078	184.468	228.704	180.750
Auxiliary consumption – MW	16.250	8.197	13.771	8.686	6.375
Net Capacity – MW	220.828	228.881	170.697	220.018	174.375
Auxiliary consumption %	6.85%	3.46%	7.47%	3.798%	3.53%
Net HHV heat rate – btu / kWh	8,178.259	7,890.559	10597.66	7,911.771	9,982.697
Approved flat net HHV HRs-btu/kWh	8,477.32	-	-	7,921.7284	-

KTGEPS

10.5. The Petitioner requested net dependable capacity and base load HRs as determined in tests conducted in July 2019 by the Independent Engineer. The requested heat rates shall be subject to part load and degradation adjustments. In the last multiyear tariff, the Authority approved HRs on the basis of degradation adjustment indicated by IE. Part load factors were allowed separately. The comparison of requested and approved HRs are provided hereunder:

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Category	Gas Fuel	
	Combined cycle	Open cycle
Gross capacity -- MW	95.513	87.272
Auxiliary consumption – MW	3.462	2.747
Net Capacity – MW	**92.051**	**84.525**
Auxiliary consumption %	3.625%	3.148%
Net HHV heat rate – btu / kWh	**9,038.043**	**9825.183**
Approved Net HHV heat rate – btu /kWh	**9,048.22**	-

STGEPS

10.6. The Petitioner requested net dependable capacity and base load HRs as determined in tests conducted in July 2019 by the Independent Engineer. The requested heat rates shall be subject to part load and degradation adjustments. In the last multiyear tariff, the Authority approved HRs on the basis of degradation adjustment indicated by IE. Part load factors were allowed separately. The comparison of requested and approved HRs are provided hereunder:

Category	Gas Fuel	
	Combined cycle	Open cycle
Gross De rated capacity – MW	96.191	87.884
Auxiliary consumption -- MW	3.464	2.883
Net Capacity -- MW	92.727	85.001
Auxiliary consumption %	3.60%	3.28%
Net HHV heat rate – btu / kWh	9063.865	9889.086
Approved Net HHV heat rate – btu /kWh	9,129.624	-

BQPS-III

10.7. The Petitioner requested guaranteed HRs and capacity numbers subject to onetime adjustment on the basis of performance tests at the time of commissioning. The Petitioner also requested part load and degradation adjustments on the proposed HRs on both fuels in line with the IPPs. Part load factor for each hour will be calculated based on part load % and part load factors and then a weighted average part load factor for the month will be calculated. Degradation shall be based on degradation tables provided by EPC.

10.8. In the last multiyear tariff, the Authority provisionally approved HRs on the basis of guaranteed numbers subject to performance test. Part load and degradation were allowed separately. The comparison of requested and approved HRs are provided hereunder:

Category	Unit 1		Unit 2	
	Gas Combined cycle	HSD Combined cycle	Gas Combined cycle	HSD Combined cycle
Gross De rated capacity – MW	459.2	368.0	459.2	368.0
Auxiliary consumption – MW	9.4	10.5	9.4	10.5
Net Capacity – MW	449.8	357.5	449.8	357.5

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Category	Unit 1		Unit 2	
	Gas Combined cycle	HSD Combined cycle	Gas Combined cycle	HSD Combined cycle
Auxiliary consumption %	2.05%	2.85%	2.05%	2.85%
Net HHV heat rate – btu / kWh	6336.9	6756.4	6336.9	6756.4
Approved HHV HRs - btu / kWh	6381	-	6381	-

10.9. The submissions of the Petitioner have been reviewed. In the instant case, KE has requested base heat rate number as achieved in the tests [carried out by independent engineer at the directions of the Authority] along with part load and degradation curves – in line with IPPs in CPPA-G system. As indicated above, the heat rate numbers in the previous MYT were approved slightly differently keeping in view the treatment of part load and degradation in each case. Accordingly, the Authority has decided to approve requested heat rates and net capacity for each power plant except for BQPS-III where provisional net LHV heat rate of 5,761 BTU/kWh and net capacity of 449.8 MW on RLNG (combined cycle) and LHV heat rate of 6,314 BTU/kWh and net capacity of 357.5 MW on HSD are being approved. Final heat rates and net capacity for BQPS-III shall be approved separately on the basis of test results. Since BQPS II has not been commissioned on HSD, no heat rates have been approved. Heat rates on HSD shall be approved after commissioning upon heat rate test to be conducted by independent engineer.

10.10. In case of BQPS-II and KCCPP, the heat rate on Simple Cycle with and without compressor are also being approved on provisional basis which shall be subject to verification by independent engineer. KE shall submit for approval of independent engineer's verified simple cycle heat rates for both plants. The Authority did not approve heat rates on simple cycle on HSD in line with the approach followed in CPPA-G system. According to the Petitioner, simple cycle operation is not applicable on BQPS-III, therefore, the same has not been considered.

10.11. The capacity and energy verification mechanism, annual capacity tests, etc. shall be in line with the mechanism followed in CPPA system and to be addressed in Service Level Agreement to be entered between the Generation & Supply businesses of KE.

10.12. Regarding degradation and part load, the Authority has decided to consider it separately. KE shall be required to submit endorsement from Independent Engineer on all curves, clearly indicating/addressing Operating Hours / Fired hours and other technical queries, if any. In line with the previous decision of the Authority, no further degradation shall be applicable in case of BQPS-I.

11. WHETHER THE REQUESTED STARTUP/SHUTDOWN AND BLACK START CHARGES ARE JUSTIFIED?

11.1. The Petitioner also requested for start-up, black start and shutdown charges. The Petitioner requested to allow startup/shutdown charges based on reference startup/shutdown charges indexed with relevant indices, including fuel prices and electricity tariff. Start-up charges shall consist of two components i.e. MDI charge and reference unit startup charges which shall cover the consumables, fuel and equivalent operating hours consumed for the startups.

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MDI charge shall be calculated based on the then applicable MDI rate in Rs/kW. The Petitioner requested to allow Black-Start charges based on reference Black-Start charges indexed with relevant indices, including fuel prices. Black-Start Charges shall consist of consumables, fuel and equivalent operating hours consumed for the black-start.

11.2. The submissions of the Petitioner have been examined. With respect to Black Start and Start up Charges, KE shall be required to submit endorsement/evaluation from 3rd party / independent engineer preferably the one who carried out the test and the issue shall be decided separately along with part load and degradation. In line with the all other power plants, shut down charges have not been considered.

12. WHETHER THE REQUESTED FUEL COST COMPONENTS OF EACH UNIT IS JUSTIFIED?

12.1. According to KE, this component represents the cost of fuel for the Net Electrical Output (NEO) produced by the plant at the allowed efficiency levels and shall be indexed for any fuel price variations. BQPS-I is currently operating on Indigenous Natural Gas / RLNG and HFO. NEO is currently recorded through meters at 220 KV bus bar and is bifurcated between Indigenous Natural Gas, RLNG and HFO. KCCP, BQPS II & III are operated on gas/RLNG and HSD as backup fuel. KTGEPS and STGEPS are operated on gas/RLNG only.

12.2. KE submitted that prices for Indigenous Natural Gas and RLNG shall be calculated based on OGRA's notification. Prices of Indigenous Natural Gas are notified in Rs./MMBtu, whereas Prices of RLNG are notified by OGRA in US$/MMBtu which are then translated into Rs./MMBtu by SSGC using the daily average exchange rates issued by National Bank for the month. Accordingly, SSGC mentions the rate in Rs./MMBtu on the bills.

12.3. On the basis of approved heat rates and prevailing prices, the fuel cost component for different plants and fuels have been worked out and approved as provided hereunder:

Description	Combined Cycle Operation (Rs./kWh)				Open Cycle (Rs./kWh)	
	Gas	RLNG	RFO	HSD	Gas	RLNG
BQI Unit 1	9.6249	41.7506	34.6414	-	-	-
BQI Unit 2	9.5496	41.4241	34.5148	-	-	-
BQI Unit 5	9.2542	40.1426	33.3197	-	-	-
BQI Unit 6	9.5982	41.6347	33.9404	-	-	-
BQPS-II (2 Compressors)	7.0747	30.6886	-	-	10.5506	45.7659
BQPS-II (1 Compressor)	6.9546	30.1674	-	-	10.2890	44.6312
BQPS-II (No Compressor)	6.8385	29.6637	-	-	10.0400	43.5513
BQPS-III	-	20.6731	-	43.3356	-	-
KCCP (3 Compressor)	7.0088	30.4024	-	N/A	9.0822	39.3964
KCCP (No Compressor)	6.7622	29.3328	-	50.7461	8.6674	37.5977
KGTPS	7.7456	33.5986	-	-	8.4202	36.5247
SGTPS	7.7677	33.6946	-	-	8.4750	36.7623
Fuel Prices	857	3,717/ 3,262	133,637	232.52	857	3,717

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12.4. The fuel cost component shall be subject to adjustment on the basis of fuel price variation. The reference RFO HHV calorific value of 40,760.748/Kg. shall also be subject to adjustment as per actual on quarterly basis in line with RFO based IPPs.

13. WHETHER THE REQUESTED VARIABLE O&M COST COMPONENT IS JUSTIFIED?

WHETHER THE REQUESTED FIXED O&M COST COMPONENT IS JUSTIFIED?

13.1. KE submitted that under the existing MYT structure, capital expenditure for maintenance of plant is allowed as investment plan and becomes part of Regulatory Asset base, whereas revenue expenses are allowed as part of O&M expenses. However, tariff for remaining life of generation plant is proposed with structure in line with IPPs where both capex and revex nature of expenditures are allowed through Fixed and Variable O&M. This will help to have visibility and align the tariff structure with CTBCM requirement and industry practice. Accordingly, proposed O&M expenses are bifurcated in Variable and Fixed, and then further bifurcated in Foreign and local, based on nature of expenses for applying relevant indexations.

13.2. According to KE, the Variable O&M Local represents plant maintenance costs consisting of both parts and services which are procured from local market in local currency by the company. Being variable in nature, these costs are linked to plants' operating hours and incurred on some specific machine operating hours intervals. The Variable O&M Foreign is for imported Gas Steam Turbine capital spare parts, electrical spares and technical services required.

13.3. For tariff calculation purposes, KE has calculated levelized Variable O&M Local and Variable O&M Foreign keeping in view costs of FY 2022 and based on projected Variable O&M cost for the remaining useful life of the respective units, including maintenance expenses being incurred at regular intervals of hours recommended by OEM, which shall be indexed with Pak CPI or USS CPI and exchange rates at the start of each quarter.

13.4. According to KE, fixed costs are incurred to ensure plant's availability irrespective of its operations. This component includes both plant maintenance expenses and necessary allied costs of salaries and wages, third party services, transport etc. Fixed O&M Foreign component consists of routine maintenances. For tariff calculation purposes, Fixed O&M Local and Fixed O&M Foreign is calculated considering FY 22 costs and based on the projected cost for the remaining useful life of the plant which shall be indexed with Pak CPI or USCPI and exchange rates at the start of each quarter.

13.5. KE in support also submitted a report of Independent Consultant (IC) on O&M cost evaluation. The report has been prepared by consortium comprising OMS (Private) Limited (Technical cum Lead Consultant) and EY Ford Rhodes (Financial Consultant).

13.6. KE vide letter dated May 16, 2023 submitted that O&M costs have been forecasted keeping in view the operational and maintenance requirements and overhaul cycles for the remaining useful lives of the plants, and have also been analyzed with historic expenses and benchmarked with comparable IPPs. Furthermore, the basis and calculation of these costs including overhauling requirements, reasonableness of expenses and costs have been validated and benchmarked by an Independent Consultant in detail. Requested O&M also includes Support services i.e. IT, finance, management, supply chain etc.

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13.7. The commentator (Arzachel Pvt. Ltd) submitted that NEPRA should examine LTSA/LSA to verify foreign O&M cost. Moreover, O&M cost of BQPS-2 seems higher than Uch-II, EPQL and Nandipur. Furthermore, for older plants. O&M indexation should be biannually as in case of TPS-Jamshoro & Muzafargarh.

13.8. KE was requested vide email dated February 12, 2024 to provide breakdown of the actual O&M expenses over the past three years KE vide email dated March 03, 2024 provided actual O&M expenses incurred during the last 7 years indexed on the basis of macroeconomics applicable on June 30, 2023. For the purpose of comparison, average of variable O&M cost of last seven years has been considered while fixed O&M cost of FY 2023 has been used. O&M cost of each power plant is discussed in succeeding paragraphs:

BQPS-I

13.9. KE submitted following comparison of O&M cost

Description	BQPS-I	TPS Jamshoro	TPS Muzaffargarh	HUBCO	Average
Variable O&M (Rs. /kWh)	0.2686	0.1098	0.1625	0.3131	0.1951
Fixed O&M (Rs./kWh)	0.8103	3.1636	2.3613	0.5429	2.0226
Total	**1.0789**	**3.2734**	**2.5238**	**0.8560**	**2.2177**

13.10. According to KE, overall O&M tariff of BQPS I is substantially lower than TPS – Jamshoro / Muzaffargarh, however, it is higher than HUBCO mainly due to fixed O&M cost (~PKR 1 billion over the assumed tariff control period) linked to onetime activities at unit-6 such as water wall panels replacement, IP Turbine diaphragm replacement, Generator/Turbine rotor inspection/ balancing & LV switchgear bus-bar replacement etc. KE also provided following historic trend of O&M cost of BQPS-I:

Description	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	6 Yr Avg (indexed)	FY 24 onwards levelized
Variable O&M Unit-1 (Rs./kWh)	0.6094	0.3038	0.5529	0.2593	0.1165	0.0869	0.5162	0.2313
Variable O&M Unit-2 (Rs./kWh)	0.1604	0.8314	0.3106	0.2251	0.0470	0.1778	0.3665	0.2153
Variable O&M Unit-5 (Rs./kWh)	0.1130	0.4670	0.0682	0.1297	0.1626	0.0760	0.2710	0.1688
Variable O&M Unit-6 (Rs./kWh)	0.0549	0.4255	1.1921	0.1587	0.3001	0.1953	0.5384	0.2685
Fixed O&M (Rs. Mil/Annum)	2,309	2,819	2,117	2,618	2,285	3,108	3,496	1,433

13.11. The submissions of the Petitioner have been examined. It would be pertinent to mention that the quoted fixed O&M figures for JPCL and NPGCL are not comparable as these were worked out on 21% to 26% on take and pay basis. Further, the comparison with TPS Jamshoro and TPS Muzaffargarh is not relevant as both are public sector plants and its operation cannot be compared with an IPP. HUBCO may be a comparable case. It is also noted that KE has calculated O&M components on the basis of Rs./kWh assuming a certain plant factor instead of Rs./kW/h on the basis of net capacity, which has been rectified.

13.12. The requested variable O&M component of KE has been updated on the basis of indices applicable w.e.f 1st July 2023. The comparison of requested, indexed, actual indexed and its comparison with the updated variable O&M of HUBCO is provided hereunder:

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Unit	Requested (Rs./kWh)			Requested Indexed (Rs./kWh)			Actual Indexed (Rs./kWh)			HUBCO Indexed (Rs./kWh)
	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	
Unit-1	0.2057	0.0256	0.2313	0.2959	0.0385	0.3344	0.1639	0.5629	0.7268	0.3777
Unit-2	0.1829	0.0324	0.2153	0.2631	0.0487	0.3118	0.1199	0.3774	0.4973	
Unit-5	0.0722	0.0966	0.1688	0.1039	0.1452	0.2490	0.0944	0.2684	0.3628	
Unit-6	0.0771	0.1915	0.2686	0.1109	0.2878	0.3987	0.0753	0.6901	0.7654	
Average	**0.1345**	**0.0865**	**0.2210**	**0.1934**	**0.1300**	**0.3235**	**0.1134**	**0.4747**	**0.5881**	

13.13. As provided above, the applicable variable O&M component of HUBCO w.e.f. 1st July 2023 is higher than the average variable O&M of BQPS-I of Rs. 0.3235/kWh, therefore, the Authority has decided to approve requested variable O&M components w.e.f. July 01, 2023 which shall be subject to applicable local/foreign indexation.

13.14. The requested fixed O&M component of BQPS-I has been updated on the indices applicable for the July to September 2023 quarter. Similarly, the fixed O&M component of HUBCO (provided by KE vide email dated October 04, 2023) has also been updated on same indices. Moreover, the requested O&M cost has also been compared with steam power plants operating on coal. The comparison is provided hereunder:

Description	Requested (Rs./kW/h)	Indexed (Rs./kW/h)	Actual (Rs./kW/h)	HUBCO (Rs./kW/h)	Coal (Rs./kW/h)
Fixed O&M Local	0.5055	0.7271	1.1236	0.5855	0.5414
Fixed O&M Foreign	0.1688	0.2537	0.1194	0.2042	0.3439
Total Fixed O&M	**0.6743**	**0.9808**	**1.2430**	**0.7897**	**0.8853**

13.15. As provided above, the requested fixed O&M of BQPS-I is even higher than the fixed O&M components of coal based IPPs despite the fact that these plants require more operation and maintenance cost. Since HUBCO is the comparable plant operating on RFO, therefore, the Authority has decided to approve fixed O&M cost of Rs. 0.7897/kW/h w.e.f. 1st July 2023 which shall be subject to applicable local/foreign indexation.

BQPS-II

13.16. KE submitted following comparison of O&M cost:

Description	BQPS-II	Uch-II	Nandipur	Average of Uch-II & Nandipur
Variable O&M (Rs./kWh)	0.4321	0.4707	0.5053	0.4880
Fixed O&M (Rs./kWh)	0.7459	0.7068	0.4682	0.5875
Total (Rs./kWh)	**1.1779**	**1.1775**	**0.9734**	**1.0755**

13.17. According to KE, fixed cost ratio in BQPS II (63.3%) is fairly aligned with UCH-II (60.0%) however it is at higher side as compared to Nandipur (36.2%). This is due to extensive maintenance needs related to sea water once through cooling system, 3 huge gas compressors and paint requirement due to sea side location, corrosive environment and usage of sea water for cooling / RO plant etc. According to KE, Variable O&M of BQPS-II is fairly aligned as compared to its benchmark plants. KE also provided following historic trend of O&M cost of BQPS-II:

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Description	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	6 Yr Avg (indexed)	FY 24 onwards
Variable O&M (Rs./kWh)	0.2865	0.1607	0.3340	0.2713	0.2750	0.3045	0.4298	0.4201
Fixed O&M (Rs. Mil/Annum)	5,656	3,623	2,686	1,768	2,101	2,067	3,300	2,857

13.18. The submissions of the Petitioner have been examined. O&M services are carried out by KE itself, therefore, the requested O&M cost needs to be compared with approved O&M cost of similar power plant and in the instant case Nandipur is the comparable power plant having similar size and technology and has a 3rd party O&M contract. As discussed above, the requested O&M components have been adjusted on the basis of net capacity. Moreover, the requested O&M cost updated on the indices applicable w.e.f 1st July 2023.

13.19. The comparison of requested, indexed, actual indexed and its comparison with the updated variable O&M of HUBCO is provided hereunder:

Description	Unit	Requested in Petition	Requested (Indexed)	Actual (Indexed)	Nandipur's (Indexed)	Approved
V.O&M Local	Rs./kWh	0.0352	0.0506	0.0625	0.0115	0.0625
V.O&M Foreign	Rs./kWh	0.3969	0.5965	0.6333	0.7534	0.6333
Total V. O&M	**Rs./kWh**	**0.4321**	**0.6471**	**0.6958**	**0.7649**	**0.6958**
F.O&M Local	Rs./kW/h	0.3275	0.4711	0.2129	0.3226	0.2129
F.O&M Foreign	Rs./kW/h	0.3319	0.4988	0.2473	0.4580	0.2473
Total F. O&M	**Rs./kW/h**	**0.6594**	**0.9699**	**0.4602**	**0.7806**	**0.4602**
Total O&M	**Rs./kWh**	**1.0915**	**1.6170**	**1.1560**	**1.5455**	**1.1560**

13.20. The actual total O&M of BQPS-II is lower than its requested O&M and that of Nandipur. Accordingly the Authority has decided to allow O&M of BQPS-II as per its actual cost, w.e.f. 1st July 2023 which shall be subject to applicable indexation.

BQPS-III

13.21. KE submitted following comparison of O&M cost:

Description	Unit 1	Unit 2	HBS	Balloki	Average of HBS & Balloki
Variable O&M (Rs./kWh)	0.2730	0.2726	0.2656	0.2963	0.2809
Fixed O&M (Rs./kWh)	0.3565	0.3559	0.3344	0.3475	0.3410
Total (Rs./kWh)	**0.6295**	**0.6285**	**0.6000**	**0.6438**	**0.6219**

13.22. BQPS III includes 2 single shaft units. Accordingly, any reference of similar technology with same configuration of single shaft (common generator for GT and ST) could not be found in Pakistan, however, the closest benchmark with respect to performance parameters were Balloki and HBS. Furthermore, BQPS III performance parameters are subject to change based on third party / NEPRA tests to be performed at COD. Overall BQPS III O&M cost tariff is line with the average of both the plants.

13.23. The submissions of the Petitioner have been examined. O&M services are carried out by KE itself, therefore, the requested O&M cost needs to be compared with approved O&M cost of similar power plants. As discussed above, the requested O&M components have been

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adjusted on the basis of net capacity. Moreover, the requested O&M cost has been updated on the basis of indices applicable w.e.f 1st July 2023.

13.24. The Authority has already benchmark HBS for BQPS III in the last MYT. The requested total O&M component of BQPS-III is higher than that of HBS, therefore, the Authority has decided to allow total O&M component of HBS to BQPS-III w.e.f. 1st July 2023 which shall be subject to applicable indexation. In order to bring uniformity with the requested composition, a slight change in the composition has been made. The comparison of requested, indexed HBS and approved O&M cost is provided hereunder:

Description	Unit	Requested in Petition	Requested (Indexed)	HBS (Indexed)	Approved
V.O&M Local	Rs./kWh	0.0384	0.0552	-	0.0443
V.O&M Foreign	Rs./kWh	0.2346	0.3526	0.3969	0.3526
Total V. O&M	**Rs./kWh**	**0.2730**	**0.4078**	**0.3969**	**0.3969**
F.O&M Local	Rs./kW/h	0.2431	0.3497	0.0532	0.3324
F.O&M Foreign	Rs./kW/h	0.0726	0.1091	0.3883	0.1091
Total F. O&M	**Rs./kW/h**	**0.3157**	**0.4588**	**0.4415**	**0.4415**
Total O&M	**Rs./kWh**	**0.5887**	**0.8666**	**0.8384**	**0.8384**

KTGEPS

13.25. KE submitted following comparison of O&M cost

Description	KTGEPS	SNPCL
Variable O&M (Rs./kWh)	1.4137	1.2651
Fixed O&M (Rs./kWh)	0.4345	0.6190
Total (Rs./kWh)	**1.8482**	**1.8841**

13.26. According to KE, any reference of similar technology with same configuration of combined cycle mode could not be found in Pakistan, however, the closest benchmark with respect to gas engines in combined cycle mode i.e., SNPCL was considered for tariff benchmarking. Overall KTGEPS O&M cost tariff is less as compared to the benchmark power plant, due to lower number of 60K major maintenance events (i.e. 53 activities during remaining life of plant until FY39). KE also provided following historic trend of O&M cost of KTGEPS:

Description	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	6 Yr Avg (indexed)	FY 24 onwards levelized
Variable O&M (Rs./kWh)	1.1261	1.2880	0.6487	1.6178	1.8775	1.3729	2.1241	1.4137
Fixed O&M (Rs. Mil/Annum)	519	402	481	391	475	457	589	308

13.27. The submissions of the Petitioner have been examined. O&M services are carried out by KE itself, therefore, the requested O&M cost needs to be compared with approved O&M cost of similar power plants. As discussed above, the requested O&M components have been adjusted on the basis of net capacity. Moreover, the requested O&M cost updated on the indices are applicable w.e.f 1st July 2023.

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13.28. The comparable power plant in the instant case is SNPC's power plant which has a 3rd party O&M contract. The requested total O&M component of KTGEPS is higher than that of SNPC, therefore, the Authority has decided to allow total O&M component of SNPC to KTGEPS w.e.f. 1st July 2023 and will be subject to applicable indexation. The comparison of requested and approved O&M components is provided hereunder:

Description	Unit	Requested in Petition	Requested (Indexed)	Actual (Indexed)	SNPC (Indexed)	Approved
V.O&M Local	Rs./kWh	0.0434	0.0625	0.2642	0.6406	0.6406
V.O&M Foreign	Rs./kWh	1.3703	2.0594	2.9409	1.2345	1.2345
Total V. O&M	**Rs./kWh**	**1.4137**	**2.1219**	**3.2051**	**1.8751**	**1.8751**
F.O&M Local	Rs./kW/h	0.3544	0.5098	0.3611	0.7938	0.7938
F.O&M Foreign	Rs./kW/h	0.0272	0.0409	0.0197	-	-
Total F. O&M	**Rs./kW/h**	**0.3816**	**0.5507**	**0.3808**	**0.7938**	**0.7938**
Total O&M	**Rs./kWh**	**1.7953**	**2.6725**	**3.5859**	**2.6689**	**2.6689**

SGEPS

13.29. The requested O&M cost of SGEPS is provided hereunder:

Description	Requested in Petition	Requested (Indexed)
Variable O&M (Rs./kWh)	1.4814	2.2229
Fixed O&M (Rs./kWh)	0.3773	0.5458
Total (Rs./kWh)	**1.8587**	**2.7686**

13.30. It is pertinent to mention that SGEPS and KTGEPS are in same configuration, however, KE has requested higher O&M cost for SGEPS than KTGEPS. Accordingly, the Authority has decided to allow the similar cost to SGEPS on the basis of applicable cost for SNPC. The comparison of requested and approved O&M components is provided hereunder:

Description	Unit	Requested in Petition	Requested (Indexed)	Actual (Indexed)	SNPC (Indexed)	Approved
V.O&M Local	Rs./kWh	0.0542	0.0780	0.1400	0.6406	0.6406
V.O&M Foreign	Rs./kWh	1.4272	2.1449	2.6792	1.2345	1.2345
Total V. O&M	**Rs./kWh**	**1.4814**	**2.2229**	**2.8192**	**1.8751**	**1.8751**
F.O&M Local	Rs./kW/h	0.3303	0.4750	0.4809	0.7938	0.7938
F.O&M Foreign	Rs./kW/h	0.0471	0.0707	0.0039	-	-
Total F. O&M	**Rs./kW/h**	**0.3773**	**0.5458**	**0.4848**	**0.7938**	**0.7938**
Total O&M	**Rs./kWh**	**1.8587**	**2.7686**	**3.3040**	**2.6689**	**2.6689**

KCCPP

13.31. KE submitted following comparison of O&M cost

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Description	KCCPP	Habibullah Coastal
Variable O&M (Rs./kWh)	1.2088	0.9417
Fixed O&M (Rs./kWh)	0.7401	1.5268
Total (Rs./kWh)	**1.9489**	**2.4685**

13.32. According to KE, from technical compatibility perspective, KCCPP average tariff has been benchmarked against estimated indexed tariff of HCPC plant for FY22. KE further submitted that HCPC is considered as close benchmark of KCCPP as it is using the same technology. According to KE, since HCPC does not fall under NEPRA tariff determination regime, HCPC's tariff is not available in public domain. However, based on general market insights of KE, power plant operating under 1994 power policy used to have energy and capacity charge with in their tariff. According to KE, escalable component of energy charge was meant to cover salaries and wages, administrative cost and repair and maintenance costs.

13.33. KE further submitted that Variable O&M of KCCPP is higher than HCPC because of site specific additional auxiliaries at KCCPP, such as sea water systems for cooling, extensive gas compressing systems due to low gas pressure supply and two steam turbines. However, total KCCPP O&M cost tariff is lower than HCPC despite KCCPP having higher auxiliary consumption (6.854%). KE also provided following historic trend of O&M cost of KCCPP:

Description	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	6 Yr Avg (indexed)	FY 24 onwards levelized
Variable O&M (Rs./kWh)	1.5960	0.5505	1.0304	0.6806	0.5039	1.5711	1.6253	1.2088
Fixed O&M (Rs. Mil/Annum)	849	727	960	771	2,928	1,485	1,661	1,432

13.34. The submissions of the Petitioner have been examined. O&M services are carried out by KE itself, therefore, the requested O&M cost needs to be compared with approved O&M cost of similar power plant. As discussed above, the requested fixed cost has been adjusted on the basis of net capacity. Moreover, the requested O&M cost updated on the indices applicable w.e.f 1st July 2023.

13.35. The comparable power plants in the instant case are Habibullah Coastal, Saif, Sapphire and Halmore. However, Habibullah Coastal and KCCP are the only plants which have LM-6000 turbine (6F Frame). The average variable O&M component of Saif, Sapphire and Halmore w.e.f 1st July 2023 is Rs. 1.2630/kWh. The variable O&M component of Habibullah Coastal w.e.f 1st July 2023 is Rs. 1.7666/kW/h. The calculation of variable O&M component of Habibullah Coastal has been sought from CPPA-G which was revised on the indices applicable w.e.f July 01, 2023 as provided hereunder:

Description	As per CPPA-G		Indexed w.e.f July 01, 2023
	Reference	Indexed	
V O&M Foreign (Rs./kWh)	0.0880	1.6861	1.7666
Index Values:			
US CPI	66.42	138.05/ 301.02*	304.127*
Exchange Rate	30.03	276.83	287.10
** US CPI All Urban Consumers*			

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13.36. The requested variable O&M component of KCCPP is higher than that of Habibullah Coastal, therefore, the Authority has decided to allow variable O&M component of Habibullah Coastal to KCCPP w.e.f. 1st July 2023 which shall be subject to applicable indexation. In order to bring uniformity with requested cost, a slight change in the composition has been made. The comparison of requested O&M component with Habibullah Coastal's O&M cost is provided hereunder:

Description	Requested in Petition	Requested (Indexed)	Actual (Indexed)	Habibullah Coastal	Approved
V.O&M Local (Rs./kWh)	0.0553	0.0795	0.1991	-	0.0795
V.O&M Foreign (Rs./kWh)	1.1535	1.7336	2.2515	1.7666	1.6871
Total V. O&M (Rs./kWh)	**1.2088**	**1.8131**	**2.4506**	**1.7666**	**1.7666**

13.37. For Habibullah Coastal, Fixed O&M is part of capacity charges and no bifurcation of capacity charges is available to identify fixed O&M. In the absence of relevant information of comparable plant, the comparison has been made with Saif Power Limited with net capacity of 212 MW with two GTs of 6F frame and 1 ST. Sapphire, Orient and Halmore are also identical plants like Saif power. The requested fixed O&M component of KCCP on updated indices works out Rs.1.0820/kW/h which is even higher than the actual indexed O&M. The comparable fixed O&M component of Saif Power is Rs. 0.7242/kW/h and the same has been approved in the instant case with slight change in the composition of the components. The breakup of requested and approved fixed O&M components is provided hereunder:

Description	Requested in Petition	Requested (Indexed)	Actual (Indexed)	Saif Power	Approved
F.O&M Local (Rs./kW/h)	0.4703	0.6764	0.6555	0.2389	0.4601
F.O&M Foreign (Rs./kW/h)	0.2699	0.4056	0.1410	0.4853	0.2641
Total F. O&M (Rs./kW/h)	**0.7401**	**1.0820**	**0.7965**	**0.7242**	**0.7242**

13.38. Due to technological differences between Saif Power and KCCPP, variable O&M component of Saif Power has not been considered and as provided above variable O&M of Habibullah Coastal has been used being like machines. Accordingly, the total O&M approved for KCCP works out Rs. 2.4908/unit against requested Rs. 2.8951/unit.

13.39. The summary of approved O&M components of each power plants:

Power Plant	Variable O&M (Rs./kWh)			Fixed O&M (Rs./kW/h)		
	Local	Foreign	Total	Local	Foreign	Total
BQPS-I	0.1934	0.1300	**0.3235**	0.5855	0.2042	**0.7897**
BQPS-II	0.0625	0.6333	**0.6958**	0.2129	0.2473	**0.4602**
BQPS-III	0.0443	0.3526	**0.3969**	0.3324	0.1091	**0.4415**
KTGEPS	0.6406	1.2345	**1.8751**	0.7938	-	**0.7938**
STGEPS	0.6406	1.2345	**1.8751**	0.7938	-	**0.7938**
KCCPP	0.0795	1.6871	**1.7666**	0.4601	0.2641	**0.7242**

14. WHETHER THE REQUESTED INSURANCE COST COMPONENT IS JUSTIFIED?

14.1. KE requested insurance premium up to 1% of EPC cost for all power plants. According to KE it is consistent with the insurance cost allowed to IPPs which shall be adjusted annually

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as per actual subject to maximum limit of 1% of EPC. KE was asked vide email dated February 01, 2023 to provide plant wise breakup of insurance cost along with insurance premium invoices. KE vide email dated March 03, 2023 submitted the required information. The comparison of requested insurance premium against actual insurance premium is provided hereunder:

Power Plant	Net Capacity (MW)	EPC Cost (US$. Mil)	Requested		Actual (FY 2021-22)	
			Insurance Premium (Rs.)	Percentage of EPC (%)	Insurance Premium (Rs.)	Percentage of EPC (%)
BQPS-I	693	341	456.57	1%	35	0.05%
BQPS-II	495	375	772.50	1%	247	0.32%
KCCP	221	175	360.50	1%	120	0.33%
KGTPS	92	84	173.84	1%	35	0.20%
SGTPS	93	73	150.96	1%	31	0.21%
BQPS-III	900	442	910.52	1%	-	0.00%

14.2. KE vide email dated December 19, 2023 submitted that KE has requested NEPRA for insurance cost up to 1% of EPC cost, as being allowed to similar IPPs for e.g. Haveli Bahadur Shah. The older IPPs were allowed higher cost of 1.35% which are comparable with BQPS II, KCCP etc. Considering the current economic conditions, obtaining insurance at 1% of EPC cost is even challenging. As the tariff structure has now changed similar to IPP structure, KE has to obtain insurance in line with IPPs including Business interruption. KE has obtained two insurance quotes through bids in respect of BQPS III which are 1.12% and 1.29%.

14.3. KE further submitted that it has also discussed with brokers and insurance is even crossing 1% in many IPPs. According to KE, insurance cost of HBS, Balloki and Bhikki ranged between 1.33% - 1.69%, 1.31% - 2.49% and 1.14%, respectively, for financial years 2019 – 2024. Moreover, one important point to be considered is that with time the EPC cost per MW is decreasing. Previously NEPRA allowed 1.35% of EPC cost as insurance when EPC cost per MW for thermal plants were around USD 0.8 million / MW, whereas now EPC costs have reduced to USD 0.5 million/MW and recent RLNG plants were allowed 1% of insurance cost.

14.4. Accordingly, insurance per MW cost allowed based on 1.35% used to be around USD 11,000 per MW, however, with reduction of EPC cost as well as benchmark to 1%, now insurance budget is around USD 4,500 per MW. As evident above, plants are not able to cover their insurance costs in 1%, therefore any further reduction from 1% of EPC cost for insurance will not be workable. Further, KE has asked for cap of 1% of EPC cost, which would mean that any reduction in future would benefit consumers. However, any increase in cost above 1% due to market conditions or any other factors, considering this will be set for 30 years, will have to be borne by KE. Considering above, KE requested to consider 1% of EPC cost for insurance for all plants, so that KE can get reasonable cover for insurance for its plants, in line with IPPs. KE vide email dated December 21, 2023 submitted copies of insurance quotes received from insurance brokers for BQPS-III only.

14.5. The submissions of the Petitioner have been examined. It would be pertinent to mention that insurance cost allowed to IPPs established under Power Policy 2002 was subject to adjustment as per actual with maximum ceiling of 1.35% of the EPC cost. On the basis of

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actual information, the maximum ceiling was revised to 1% for IPPs established afterwards. The maximum ceiling for insurance during operation was further revised to 0.7% in the NEPRA (Benchmark for Tariff Determination) Guidelines 2018 for new power plants.

14.6. The actual insurance for generation assets is substantially on lower side as per the available information for FY 2021-22 which is around 0.21%. According to KE, this is not the true reflection of insurance cost as business interruption was not included in it. Accordingly, for calculation of reference component, actual insurance cost, except for BQPS-III, has been used which shall be subject to adjustment with maximum of 0.70% of EPC cost as per tariff guidelines and on the basis of prevailing exchange rate applicable on the 1st day of the start of insurance coverage period. Since actual information of BQPS III is not available, the same has been assessed on the basis of 0.70% of EPC cost subject to adjustment as per actual with maximum cap. The approved reference insurance component of each plant is provided hereunder:

Power Plant	Capacity (MW)	EPC Cost (US$. Mil)	Approved	
			Premium (Rs. Mil)	Component (Rs./kW/h)
BQPS-I	693	341	35	0.0092
BQPS-II	495	375	247	0.0570
KCCP	221	175	120	0.0618
KTGEPS	92	84	35	0.0436
SGEPS	93	73	31	0.0381
BQPS-III	900	442	888	0.1127

15. WHETHER THE REQUESTED REGULATORY ASSET BASE IS JUSTIFIED?

15.1. According to KE, Regulatory Asset Base (RAB) comprises of written down value of plant excluding surplus on revaluation and including intangibles (mainly software used for regulated business) and CWIP at start of control period, which will be depreciated each year based on remaining useful life of the plant.

15.2. KE further submitted that RAB based on current structure at the end of FY 2023 will be locked and used as a basis for proposed MYT and further additions to RAB shall only be based on any project based addition / modification to the plant subject to NEPRA's approval for which a one-time request will be submitted for adjustment in tariff components. KE submitted projected opening RAB of each plant as on 1st July 2023 and requested NEPRA to actualize the same based on audited financial statements. KE was asked to provide actual RAB as on 1st July 2023. In response, KE vide email dated September 18, 2023 provided actual audited RAB. The estimated and actual RAB numbers for each plant as on July 01, 2023 are provided hereunder:

Plant	RAB as per Petition	Actual Audited RAB
	Rs. in Million	
BQPS-I	9,741	9,902
BQPS-II	40,268	41,762
KCCP	18,477	18,150
KTGEPS	3,221	3,612

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Plant	RAB as per Petition	Actual Audited RAB
	Rs. in Million	
SGEPS	4,504	4,726
BQPS-III	95,154	103,314

15.3. The submissions of KE have been examined. The submitted RAB is in accordance with the multiyear tariff mechanism except for BQPS-III and BQPS-I, which shall be discussed separately in the succeeding paragraphs. Accordingly, the Authority has decided to approve actual audited RAB as on 1st July 2023. The closing RAB shall be worked out after netting of the depreciation charge for the year and the average of the opening and closing RAB shall be used for calculation of cost of capital.

15.4. In case of BQPS-I, KE carried out an investment in respect of Generation Long Term Investment Plant (GLTIP) during MYT period FY 2017 to FY 2023 amounting to Rs. 2.9 Billion. The investment was not approved by the Authority in the Mid-Term review. KE vide email dated March 03, 2024 submitted that as on June 30, 2023, the written down value of the investment is Rs. 1,169 million. Accordingly, the written down value of GLTIP has been deducted from the requested RAB of BQPS-I and the adjusted RAB works out Rs. 8,733 million and the same has been approved which shall be subject to final decision on the appeal filed by KE in the NEPRA Appellate Tribunal against Authority's decision dated March 01, 2022 in the matter of Mid Term Review under the Multi Year Tariff (FY 17 – 23).

15.5. Regarding RAB of BQPS-III, the Authority approved project cost of Rs. 72,238 million (US$ 624.6 million) at average exchange rate of Rs. 115.65/US$. The projected COD of the plant was in FY 2019-20. The investment along with interest cost, hedging cost and ROE was allowed till the expected COD and thereafter these costs along with annual depreciation were allowed as post COD costs. The written down value of the project as on 30th June 2023 was Rs. 62,912 million as per NEPRA determination. The project could not meet the milestones as anticipated and resulted in substantial delay and could only achieve actual COD on March 09, 2023 for the 2nd unit and May 10, 2023 for the 1st unit. Although the actual project cost in terms of dollars was on lower side (US$ 560 million), the rupee value increased to Rs. 103,314 million as per actual audited accounts with average exchange rate of Rs.184.49/US$ as per information submitted by the Petitioner.

15.6. The issue of excessive depreciation and RoRB (including ROE, interest and hedging cost) allowed due to mismatch of actual and anticipated timelines was also discussed in the mid-term review, and no downward adjustment was made in the tariff in accordance with the terms of MYT.

15.7. The Authority also noted that the previous multiyear tariff was an integrated tariff with a fixed structure and defined parameters for adjustment. Consequently, it would not be appropriate to analyze the costs or returns allowed for one specific power plant in isolation. KE has indicated that it has experienced under-recovery on an overall basis under the previous multiyear tariff, as certain amounts could not be recovered due to lower sales and other factors. Therefore, focusing solely on one aspect would overlook the broader context of the entire integrated multiyear tariff.

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15.8. In view of the above, for the purpose of calculation of RAB for BQPS-III the actual capitalized cost of KE has been considered which has been reduced by the capitalized IDC, capitalized Sinosure premium, actual depreciation and cost associated with HSD commissioning. Accordingly, the adjusted RAB works out Rs. 80,837 Million and the same has been approved. It would be important to highlight that the actual RAB is based on $ 560 million as against the $624.6 million in the MYT, thereby a saving of $ 64.6 million for the consumers. The calculation of BQPS-III RAB is provided hereunder:

Description	Unit	As per Actual
Project Cost	US$ Mil	560*
	Rs. Mil	103,314
Capitalized IDC	Rs. Mil	(20,179)
HSD Commissioning	Rs. Mil	(1,123)
Sinosure Premium Capitalized	Rs. Mil	(659)
Depreciation	Rs. Mil	(516)
Net RAB	**Rs. Mil**	**80,837**
Avg. Ex Rate	Rs./US$	183.80
** Includes US$ 4 Mil for HSD Commissioning*		

15.9. The Petitioner vide email dated February 29, 2024 submitted that in case of BQPS-III, LD of US$ 1.2 Million (Rs. 344.7 Million) was imposed on the EPC contractor. In the total project cost of US$ 657.42 million (Rs. 130,294 Million) including transmission, LD amount has already been netted off. Further, safety LD of USD 0.57 Million was imposed on the contractor which goes to welfare institution as per the contract. This is not netted off in the RAB.

15.10. The approved RAB, including LDs, of BQPS-III shall be subject to verification and KE would be required to file true-up request after HSD commissioning. It would be pertinent to mention that HSD commissioning of both units have been achieved on January 09, 2024 and March 05, 2024. Actual HSD commissioning cost shall also be subject to verification and shall be included in the RAB at the time of one-time true up of the tariff.

15.11. KE vide letter dated September 25, 2023 submitted that it has planned to commission BQPS-II on HSD in compliance with the directions issued by NEPRA and to ensure reliable power supply. According to KE, Rs. 1,751 Million is estimated for the project which shall be actualized on the basis of finalized contract. The Authority has decided to consider the HSD commissioning of BQPS-II separately.

16. WHETHER THE REQUESTED DEBT-EQUITY RATIO OF 70:30 IS JUSTIFIED?

16.1. The Petitioner proposed debt to equity ratio of 70:30 as allowed in the previous MYT. The Petitioner vide letter dated May 16, 2023 submitted that in the lapsed MYT, it was allowed a Return on RAB based on a notional debt to equity ratio of 70:30, whereas its actual debt to equity ratio based on debt and invested equity was 24:76 in FY 2016

16.2. According to the Petitioner, despite lower invested equity, it has proposed Return on RAB based on a notional debt to equity ratio of 70:30 in line with the previous MYT. It is important

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to note that KE's actual debt to equity ratio in FY 2023 is 46:54 and hence, lower equity has been considered in the existing MYT resulting in lower returns allowed to KE.

16.3. The Petitioner further submitted that during the past proceedings relating to determination of the previous MYT, it has raised concerns on several occasions regarding notional debt to equity ratio of 70:30 allowed by the Authority. KE argued that it was going through financial difficulties and had to fund losses through injection of equity. However, return on the same was not allowed by the Authority and consequently, KE was allowed a lower effective return on RAB as the equity invested over and above the notional thirty percent (30%) was considered as debt for the purpose of calculating the return components.

16.4. According to the Petitioner, being aggrieved, it filed an Appeal before the NEPRA Appellate Tribunal, decision of which is pending to date. KE has proposed that in case any relief granted by the NEPRA Appellate Tribunal regarding KE's actual invested equity, same shall be applicable under the proposed tariff for the purpose of calculation of return components.

16.5. The submissions of KE have been reviewed. In the previous MYT, the Authority approved debt to equity ratio of 70:30 and the same has been requested by KE in the instant petition. According to KE, the actual debt to equity ratio of KE as of FY 2023 is 46:54. The same has been verified from the Annual Report of KE for the FY 2022. According to Section 11 of Power Policy 2015 and Section 6(4) of the NEPRA (Benchmarks for Tariff Determination) Guidelines, 2018, equity in excess of 30% shall be treated as debt. Accordingly, in line with the MYT and Tariff Guidelines, the Authority has decided to maintain debt equity ratio of 70:30 in case of all plants. In case of BQPS-III, in order to maintain equity of 30%, the equivalent reduction has been made in the unhedged debt portion.

17. WHETHER THE DOLLAR BASED RETURN ON EQUITY OF 15% IS JUSTIFIED?

17.1. KE submitted that in the last MYT, a dollarized 15% return on equity was allowed by the Authority subject to variations in PKR/USD exchange rate. Accordingly, KE proposed a dollar based ROE of 15% subject to variation in PKR/USD exchange rate on a quarterly basis as allowed by the Authority to IPPs.

17.2. The commentator (Mr. Arif Bilwani) submitted that neither was there any clause in the IA for US$ based return on Equity or RAB or any condition for Rupee based &/Or Dollar based CPI or any other form of indexation on any item. Another commentator (Arzachel Pvt Ltd) recommended that in case of BQPS-3, annual dollar indexation on 50% portion and 13% return considering exchange rate at Rs. 250/US$ shall be allowed. In case of BQPS-1, no dollar indexation and 13% return considering exchange rate of Rs. 170/US$ shall be allowed. Similarly, in case of all other plants, no dollar indexation and 13% return considering exchange rate of Rs. 200/US$ shall be allowed.

17.3. In response to a query raised in the above context, KE vide its letter dated 24th July 2023 submitted that reduction in ROE of those certain IPPs was a result of mutual agreements. Further this reduction has not been applied consistently to all the IPPs and still there are several IPPs where allowed dollar based ROE has not been reduced. In future, if ROE of all the existing IPPs is reduced then KE may consider the same as per applicable legal framework.

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17.4. The Authority has reviewed the above submissions and noted that KE was granted a ROE of 15% (USD-based) for its generation power plants in the previous multiyear tariff, a level that is consistent with comparable IPPs. This figure was established based on comprehensive benchmarking and financial analysis conducted at that time, while a re-evaluation could yield a higher figure given the prevailing economic conditions of the country. The Authority acknowledges KE's assertion that there has been no unilateral reduction in the ROE for IPPs. If KE had received a tariff covering the full operational life of its plants in the last multiyear tariff, the allowed ROE would have remained at 15% (USD-based), aligning with the treatment of other IPPs. Nonetheless, the Authority, acknowledging that the plants within KE's fleet are already established and operational, has decided to approve the ROE at 14% (USD-based). This approved ROE will apply during the respective control periods established for each power plant in this determination. Furthermore, the Authority can adjust this approved ROE downward if a reduction occurs for IPPs that have entered into agreements with the Government of Pakistan.

18. WHETHER THE REQUESTED COST OF DEBT INCLUDING HEDGING COST IS JUSTIFIED?

18.1. According to KE, like existing MYT, cost of debt for local component will be calculated based on 3 month KIBOR plus a spread of 2.5% and cost of debt for foreign component is calculated based on 3 month LIBOR, 4.5% spread and hedging cost based on difference of 3 month KIBOR and 3 month LIBOR plus a hedging cost spread of 2.5%.

18.2. KE vide letter dated May 16, 2023 submitted that cost of debt has been included in the tariff based on cost of debt allowed to IPPs as follows:

- Cost of debt for local loan based on 3 month KIBOR plus a spread of 2.5%;
- Cost of debt for foreign loan based on 3 month LIBOR and spread of 4.5%;
- Hedging cost based on a difference of 3 month KIBOR and 3 month LIBOR plus a hedging cost spread of 2.5% for the foreign loan
- Hedging only covers the principal amount and LIBOR only. Spread on LIBOR is not covered.
- Considering the macro economic situation, hedging spreads have increased, further, KE also plans to hedge the spread portion.
- Tax on interest payment to foreign lenders to be allowed as pass through.

18.3. KE further submitted that from end of FY 22 to date, banks are not providing hedging facility to KE for new loans due to the prevailing economic situation and as a result KE has to face significant exchange losses. Accordingly, KE requested that in case the hedging facility is not provided by banks to KE in future, KE should be allowed to claim such exchange loss at actual, net of hedging cost saving for the specific period till hedging is not approved. KE would request for such an adjustment on case to case basis for approval of the Authority.

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18.4. According to KE, it has paid ECA premium on BQPS-III foreign loan and has claimed the same as pass through in expired MYT for which separate proceedings for approval are in progress. However, in case Authority allows the same as levelized cost over the term of loan, KE would request for a onetime adjustment in reference Cost of debt component. KE vide letter dated July 24, 2023 submitted that the depreciation component related to debt may also be allowed to be redeemed in ten years as allowed to IPP and to match the debt repayment profile.

18.5. The submissions of the Petitioner have been examined. NEPRA (Benchmarks and Tariff Determination) Guidelines 2018 provides for maximum spread of 2.25% in case of local financing. Therefore, the request of KE to allow spread of 2.5% is not consistent with the tariff guidelines. Moreover, in case of BQPS III KE has secured local financing on 2.25% spread, therefore, there is no justification to allow spread of 2.5%. Accordingly, cost of 70% financing in case of all power plants except BQPS III has been assumed on the basis of reference 3 month KIBOR of 22.91% (SBP's published rate as on June 27, 2023) plus spread of 2.25%.

DEBT FINANCING OF BQPS-III

18.6. The Petitioner in its petition requested debt to equity ratio of 70:30. As per the tariff model, KE assumed 25% local financing and 75% foreign financing. KE calculated cost of debt on local loan on the basis of 3 Month KIBOR plus spread of 2.5% and on foreign financing on the basis of 3 month LIBOR, spread 4.0% and hedging cost based on difference of 3 month KIBOR and 3 month LIBOR plus a hedging cost spread of 2.5%, including 1% for principal and 1.5% for spread.

18.7. KE further submitted that the above mentioned spreads are based on LIBOR and accordingly LIBOR has been used as a reference for the tariff petition for calculating foreign cost of borrowing. However, considering Secured Overnight Financing Rate (SOFR) will supersede LIBOR as a new interest rate benchmark post June 2023 i.e., start of the next term, LIBOR will be replaced by SOFR and accordingly, change in spreads on shifting to SOFR from LIBOR will be requested as a onetime adjustment based on changes in the current loan agreements with the lenders. Consequently, allowed spreads on foreign loans along with associated impact on reference tariff shall be updated and then SOFR will be used as reference for indexation for subsequent periods.

18.8. KE vide email dated March 22, 2024 submitted that Overnight SOFR will be used instead of LIBOR for calculation of cost of debt. KE vide email dated June 06, 2024 submitted that Overnight SOFR at June 30, 2023 is 5.09% and CAS is 0.26161%. KE further submitted that Overnight SOFR changes on daily basis, and a weighted average rate of a quarter of loan period is used for actual calculation. KE requested that for an annual adjustment of any over/under recovery due to application of quarter end rate vs actual weighted average rate of SOFR KIBOR along with tax pass through and other annual adjustments.

18.9. KE also submitted that ECA backed loans include payment of premium and tax on premium / interest payments. As the premium was paid in during previous MYT, KE has claimed cost of premium in the instant petition. However, in case if the same allowed by Authority as levelized cost over the term of loan, KE would request to allow the revision of cost of debt

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component determined pursuant to the instant tariff petition. Further, KE would request to allow tax on foreign loan payments as pass through, as allowed to other power sector entities.

18.10. KE was directed to provide details of actual loans. In response KE vide email dated September 22, 2023 submitted following details:

Description	Amount (Rs. Mil)	Interest Rate (%)	Indexation
Hermes Hedged	16,255	KIBOR+0.07%+1.35%	KIBOR & Exchange Rate Variation on Loan Spread only
Sinosure Hedged	26,341	KIBOR+1.06%+2.90%	KIBOR & Exchange Rate Variation on Loan Spread only
Sinosure Unhedged	17,515 (US$ 85.06 Mil)	LIBOR + 2.90%	LIBOR + Exchange Rate Variation
Local Loan	10,541	KIBOR + 2.25%	KIBOR

18.11. According to KE, while obtaining loans for projects, certain transaction costs are incurred. These include one-time transaction execution costs, commitment fees, ongoing agency fee, and ECA premiums in case of foreign loans. As per the accounting treatment, the initial transaction costs have to be netted off with loan amount liability, and loan amount is recorded at net amount received. Subsequently, the transaction cost amount is amortized over the loan period and gradually transferred to P&L as expense along with the normal cost of debt. Any transaction cost being transferred to P&L during the construction period is capitalized in the Asset. Once the construction is completed, amortization of transaction costs goes into P&L account. As KE's generation tariff for the control period is being set for FY 2024 onwards, when plant is already completed and running, the starting Regulatory Asset Base has been taken as per financial statements, which only includes certain amount of transaction cost which was capitalized. Therefore, KE had requested the loan spreads, including the impact of amortization of Transaction costs (which were not capitalized in asset) over the life of the loan.

18.12. The submissions of the Petitioner have been examined. The ECA premium/sinosure has been allowed vide decision dated January 01, 2024 and the same has not been considered in the instant case. Moreover, transaction cost paid and not capitalized is treated as a separate loan shall be recovered through tariff during the debt servicing period.

18.13. In case of legacy contracts signed on or before June 30, 2023, Economic Coordination Committee (ECC) of the Cabinet have approved following two option and it is assumed that the same shall be applicable for new contracts:

i. Daily Simple SOFR plus relevant ISDA recommended CAS; or

ii. Term SOFR plus relevant ISDA recommended CAS.

18.14. In line with the ECC decision, KE has opted overnight (daily) SOFR plus applicable CAS. Accordingly, debt servicing part of unhedged loan has been worked out on the basis of overnight SOFR of 5.09% as on June 30, 2023 along with CAS of 0.26161% which shall be subject to indexation quarterly. In case, the actual cost of debt is lower than the allowed cost, the same shall be adjusted at the time of quarterly indexation. Regarding request for annual

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adjustment of any over/under recovery, the mechanism/methodology for calculation of overnight SOFR shall be applied uniformly across all IPPs including KE. In case KE further secures hedging of the unhedged portion of the foreign loan, the same shall be considered at the time of one-time adjustment.

18.15. Regarding requested debt to equity ratio of 70:30, the Authority has decided to allow the same in case of BQPS III also. Moreover, in order to maintain equity of 30%, the equivalent reduction has been made in the unhedged debt portion. Accordingly, the unhedged loan amount works out US$ 16.75 Million (Rs. 4,809 Million on exchange rate of Rs. 287.10/US$).

18.16. The repayment period of foreign loans is 45 quarters while the repayment period of local loan is 48 quarters. In case of IPPs, the Authority allows redemption of loan in line with actual repayment of loan. Since BQPS-III is a newly commissioned plant, therefore, as requested by KE, debt servicing has been allowed in line with the mechanism allowed to other IPPs instead of annual depreciation. The analysis shows that the approved method shall bring substantial savings for the consumers over the debt servicing period of 11 years as well as the entire useful life of 30 years.

18.17. KE has also requested to allow tax on interest payment to foreign lenders as pass through. The Authority in its decision dated 23rd December 2007, in case of Engro Powergen Qadirpur Limited, allowed withholding taxes paid on interest payments to foreign lenders as pass-through costs. Accordingly, the Authority has decided to allow similar treatment in the instant case. KE shall submit verifiable documentary evidences for claiming subject non-refundable/ non-adjustable withholding tax on interest payments to foreign lenders.

18.18. The average and levelized cost of debt of all plants is provided hereunder:

Description	BQPS-I (Rs./kW/h)	BQPS-II (Rs./kW/h)	BQPS-III (Rs./kW/h)	KCCPP (Rs./kW/h)	SGEPS (Rs./kW/h)	KTGEPS (Rs./kW/h)
Average	0.2467	0.8227	1.5003	0.7888	0.4891	0.3766
Levelized	0.2733	1.0835	1.2235	1.0100	0.6263	0.4822

19. WHETHER THE REQUESTED DEPRECIATION IS JUSTIFIED?

19.1. KE requested to allow depreciation on written down value of RAB at the end of FY 2023 on straight line basis. KE also submitted that any additions relating to any specific capital expenditure during the period will accordingly be added to the RAB and depreciation schedule will be recalculated. Further, in the event of change in RAB due to addition of any specific project approved by the Authority, then KE will request for adjustment in reference tariff for remaining life of the plant.

19.2. KE vide letter dated May 16, 2023 submitted that depreciation represents the recovery of principal amount invested over the remaining useful life of the plant and has been proposed to be calculated using a straight line method based on written down value of RAB at the end of FY23 and remaining useful life of the plant. The requested depreciation of each plant is provided hereunder:

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Plant Name	Remaining Useful Life (Years)	Annual Depreciation (Rs. Mil)	Average Depreciation (Rs./kW/h)
BQPS-I	1	2,464	0.59
	2-3	1,144	
	4	874	
	5	784	
BQPS-II	1-20	2,082	0.54
BQPS-III (Unit-1)	1-30	1,566	0.45
BQPS-III (Unit-2)	1-30	1,637	0.47
KCCPP	1-17	1,143	0.67
KTGEPS	1-17	199	0.28
SGEPS	1-17	279	0.39

19.3. The commentator (Arzachel Pvt. Ltd) submitted that depreciation charge on capital investment in Unit 1 & 2 should not be allowed due to delay in commissioning of BQPS-3. Moreover, for depreciation, life and capital investment of each plant should be vetted.

19.4. The submissions of KE have been examined. On the basis of audited accounts for FY 2022-23, the RAB for each power plant has been actualized and locked for the future tariff control period except for BQPS-III. In line with IPPs, no adjustment shall be made in the future on account of capital expenditure. For any new project, the matter shall be decided upon filing of tariff petition.

19.5. The proposed straight line method of depreciation is in line with the expired MYT regime and approved as such. On the basis of actual RAB as on 1st July 2023, the depreciation component has been worked out as under:

Plant Name	Period (Years)	Annual Depreciation (Rs. Mil)
BQPS-I	1	2,238
	2-3	1,028
	4	780
	5-10	696
BQPS-II	1-20	2,160
KCCPP	1-17	1,122
KTGEPS	1-17	223
SGEPS	1-17	292

19.6. In case of BQPS-III, tariff has been worked out on cash flow method with front loaded debt servicing in line with IPPs, therefore, there shall be no separate depreciation component for BQPS-III.

20. WHETHER THE REQUESTED COST OF WORKING CAPITAL IS JUSTIFIED?

20.1. KE requested cost of working capital on the basis of cost of stores and spares, cost of fuel inventory (furnace oil/HSD), cost of fuel in receivable cycle and cost of SBLC. According to KE, working capital component has been calculated for the control period based on projected movement of balances on year and reference KIBOR of 15.6% as of FY 2022 plus a short term spread of 2%. The requested cost of working capital is provided hereunder:

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Description	Unit	BQPS-I	BQPS-II	KCCP	SGEPS	KTGEPS	BQPS-III
Cost of Net Receivables	Rs.	444	1,320	586	269	267	1,639
Cost of Fuel Inventory	Rs.	960	-	356	-	-	-
Cost of SLBC	Rs.	10	11	5	2	2	40
Cost of Stores & Spares Inventory	Rs.	268	320	153	70	65	780
Total	**Rs.**	**1,683**	**1,651**	**1,100**	**341**	**335**	**2,459**
Annual Generation (gas/RLNG)	GWh	3,228	3,830	1,715	712	708	6,980
CoWC (gas/RLNG)	**Rs./kWh**	**0.5213**	**0.4310**	**0.6411**	**0.4797**	**0.4726**	**0.3523**
Annual Generation (HSD)	GWh	-	-	1,709	-	-	5,547
CoWC (HSD)	**Rs./kWh**	-	-	**0.6435**	-	-	**0.4433**

20.2. KE also submitted that cost of working capital shall be indexed with actual KIBOR, change in fuel prices and load factor on quarterly basis. Further, reference component shall be updated in future through a request in case of any change in circumstances for example introduction of HSD inventory or update in SBLC cost pursuant to any changes / addition in the arrangement.

20.3. KE vide letter dated May 16, 2023 submitted following details of each component of working capital.

Cost of Fuel Inventory

20.4. According to KE, in line with IPPs, cost of fuel inventory for HSD fuel in the case of KCCPP, BQPS-III & BQPS-II plants (to be commissioned) is proposed to be maintained for 7 days while 65,000 metric tons of HFO fuel shall be maintained (16,250 MT / unit) for BQPS-I plant as allowed by the Authority in the current MYT to ensure sustained and uninterrupted supply of power in the event of gas shortages / low gas pressure. For BQPS-I, the inventory of furnace oil has been gradually reduced along with expiry of respective units' lives. In case of BQPS-III, KE submitted that cost of HSD inventory has not been included and the same will be requested post commissioning of plant on HSD fuel.

20.5. The submissions of the Petitioner have been reviewed. As per Para 32.37 of the decision dated March 01, 2022, the Authority allowed KE to maintain RFO inventory of 65,000 Tons for BQPS-I which amounts to approximately 15 days of inventory on full load for each unit of the plant and the same has been requested by KE. In case of RFO based IPPs of 2002 Policy, fuel inventory for 30 days at 60% has been allowed which is sufficient for 18 days full load operation. Moreover, in case of KCCP, KE has requested HSD inventory of 7 days on full load and the same has been considered since it is in line with the mechanism allowed to other power plants. In line with KE request, HSD inventory in case of BQPS III shall be decided post commissioning of the plant on HSD fuel. The cost of fuel inventory shall be subject to adjustment on each quarter on the basis of applicable fuel prices, KIBOR and actual fuel inventory level maintained in the preceding quarter subject to maximum allowed inventory.

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Fuel Cost Receivable Cycle

20.6. According to KE, cost of receivable cycle is based on 30 days receipt period and 7 days credit on RLNG fuel resulting in net receivable for 23 days. On the same premise, cost of receivable cycle on HFO fuel for BQPS-I plant is based on 30 days receipt period and 18 days credit period for HFO, resulting in net receivable for 12 days. Accordingly, working capital for fuel cost for aforementioned days is being proposed on levelized plant load factors for RLNG while 60% load factor for HFO fuel (proposed to be actualized on quarterly basis), as allowed to other power sector entities with dual fuel plant facilities.

20.7. The submissions of the Petitioner have been reviewed. In case of BQPS-I, KE has considered receivable period of 30 days and payment period of 18 days, thus resulting in net receivable period of 12 days on the basis of load factor of 60%. The requested receivable cycle seems reasonable, therefore, approved as such. In case of gas operation, no receivable shall be allowed and in case of mix operation the weighted average receivable cycle shall be considered at the time of adjustment.

20.8. In case of remaining power plants, KE has considered receivable period of 30 days and payment period of 7 days, thus resulting in net receivable period of 23 days. The requested net receivable period is in line with other power plants on RLNG and the same is approved as such. In case of gas operation, no receivable shall be allowed and in case of mix operation the weighted average receivable cycle shall be considered at the time of adjustment.

20.9. The actual plant factor for the last year for different plants ranges 1.3% to 94.2% Accordingly, the receivables have been worked out on the basis of actual plant factor or 20%, whichever is higher, which shall be subject to adjustment as per actual plant/load factor. The cost of receivable shall be subject to adjustment on each quarter on the basis of applicable fuel price, KIBOR, load factor of preceding quarter and receivable cycle, if any.

Cost of Standby Letter of Credit (SBLC)

20.10. According to KE, SBLC cost is being requested for the next term in line with IPPs based on 60 days' worth of consumption of RLNG in PKR terms at Reference Fuel Prices or Actual amount of SBLC given. Based on the above, SBLC shall be lower of the actual amount paid or cost calculated at SBLC Rate of 1.5% as allowed to IPPs. Currently, the above requested component in cost of working capital is based on the existing issued SBLC to SSGC (0.5%) & PLL (0.6%) for BQPS-III RLNG Supply. However, going forward SBLC rate is proposed to be adjusted in case of any new agreement with fuel suppliers subject to cap of 1.5% as allowed to IPPs

20.11. The submissions of the Petitioner have been examined. KE has provided different SBLC's for different plants which are substantially lower than the 60 days cost, accordingly, the actual SBLC amount has been taken for calculation of SBLC cost. The requested SBLC cost limit of 1.5% is on higher side as compared to the actual cost, therefore, the same has been capped at 1%. For the calculation of SBLC cost, actual SBLC charges have been used. The cost of SBLC shall be subject to actual SBLC amount with maximum of 60 days consumption and actual charges with maximum of 1%.

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Cost of Stores and Spares

20.12. In line with the expired MYT, KE requested stores & spares inventory in the cost of working capital. Stores & spares include critical items required to maintain performance, availability and continued operations of the plants and in the absence of which risk of power outages may arise.

20.13. The submissions of the Petitioner have been reviewed. KE vide email dated October 03, 2023 submitted reconciliation of stores and spares with financial statement. KE vide email dated October 12, 2023 provided a detailed breakdown of the inventory of stores and spare parts for each plant. It is pertinent to mention that in case of IPPs, the cost of spares are included in the project cost. Since this cost is not included in the RAB, therefore, the same has been considered and approved as part of cost of working capital. The cost of stores and spares shall be subject to adjustment as per actual on each quarter and applicable KIBOR only.

20.14. All components of cost of working capital have been worked out on the basis of indices applicable w.e.f 1st July 2023. It is also noted that KE has calculated cost of working capital components on the basis of Rs./kWh assuming a certain plant factor instead of Rs./kW/h on the basis of net capacity, which has been rectified. The breakup of the approved cost of working capital of each power plant is provided hereunder:

Description	BQPS-I	BQPS-II	BQPS-III	KCCP	SGEPS	KTGEPS
	Rs. (Mil)					
Net Capacity (MW)	693	495	900	221	92	93
Cost of Net Receivables	459	1,654	2,716	218	101	100
Cost of Fuel Inventory (RFO/HSD)	1,343	-	-	551	-	-
Cost of SLBC	10	11	40	5	2	2
Cost of Other Inventory	458	520	1,132	275	108	96
Total	**2,270**	**2,184**	**3,888**	**1,049**	**211**	**199**
Cost of Working Capital (Rs./kW/h)	**0.5905**	**0.5041**	**0.4933**	**0.5422**	**0.2604**	**0.2466**

20.15. As discussed in the preceding paragraphs, the cost of working capital shall be adjusted on quarterly basis for the following variations:

- Fuel Price
- Load Factor
- SBLC Amount
- Value of Stores & Spares
- Fuel Inventory
- Receivable Cycle
- SBLC Charges
- KIBOR

21. WHETHER THE REQUESTED PASS THROUGH ITEMS ARE JUSTIFIED?

21.1. According to KE, it has requested following pass-through items as allowed to other IPPs and similar to current MYT:

i. Corporate Tax and WWPF/WWF

ii. Unrecovered Cost of Current MYT

iii. Costs pursuant to Import of Power during Non-Operational Hours

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iv. Take or Pay Arrangement Charges

v. Costs Pursuant to Unbundling in Future

vi. Gas Infrastructure Development Cess (GIDC)

vii. Costs related to Force Majeure Event

21.2. The discussion and decision on each item is provided in succeeding paragraphs:

Corporate Tax and WWPF/WWF

21.3. KE submitted that it is an integrated entity therefore Corporate Tax and WPPF/WWF on overall company level is a pass through item within current MYT. Considering that legal structure will remain same, it is proposed that corporate tax and WPPF/WWF shall be passed through to consumers in Supply Tariff. However, going forward, in case of any change in legal structure whereby a corporate tax and WWF/WPPF is separately levied on Generation plant, same shall be passed through as done in case of IPPs.

21.4. The submissions of KE have been reviewed. Being an integrated utility, no separate tax/WWPF/WWF is currently applicable on generation segment. In case the same is applicable due to change in law in future on the generation segment, it shall be allowed in line with IPPs.

Unrecovered Cost of Current MYT

21.5. KE requested to allow any unrecovered cost determined by NEPRA pertaining to current MYT with respect to generation segment to be allowed in the next term as pass through.

21.6. The submissions of KE and commentator have been reviewed. Any unrecovered cost of outgoing MYT may be claimed under pending end of term adjustment of the MYT. Therefore, the request of KE is not being accepted in the instant case.

Costs pursuant to Import of Power during Non-Operational Hours

21.7. KE requested to allow that in case plant is on stand-by but not in operation in accordance with the despatch instructions, costs pertaining to import of power is requested to be passed through in tariff to ensure efficient startups to meet customer demand requirements based on EMO principle.

21.8. The submissions of KE have been reviewed. The requested provision of cost is not in line with IPPs, as this cost is part of O&M and has already been accounted for in the O&M. Therefore, the same has not been considered.

Costs related to Force Majeure Events

21.9. KE submitted costs related to a Force Majeure Events are requested to be passed through in tariff. According to KE, details and modalities of force majeure events will be included under the SLA between generation plants and KE's LDC/Supply business, pursuant to the approval of Head of Terms submitted in the petition by NEPRA, in line with agreements of other IPPs

21.10. The submissions of KE have been reviewed. Any FM event(s) shall be considered strictly in line with the IPPs.

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Take or Pay Arrangement Charges

21.11. KE submitted that in case of any future/existing RLNG fuel agreements with suppliers on Take or Pay basis which require KE to ensure regular payments for Fuel Charges regardless of plant operations, same shall be allowed as pass through.

21.12. The submissions of KE have been reviewed. The matter has already been addressed under the relevant issue.

Gas Infrastructure Development Cess (GIDC)

21.13. According to KE, the matter of GIDC is *sub-judice* and no amount is passed onto the consumers. The Authority has also stated that the adjustment will be allowed only post determination by the court. Accordingly, if any GIDC is required to be paid (pertaining to prior periods) based on court verdict, the same being of pass through nature, is proposed to be allowed as pass through.

21.14. The submissions of KE have been reviewed. GIDC is an addition to the gas price and is a pass-through item, therefore, the same shall be allowed if applicable in future.

Costs Pursuant to Unbundling in Future

21.15. KE submitted that in future, if there is any legal unbundling, it will file for a one-time adjustment for additional costs pursuant to unbundling which shall be pass through once approved by the Authority.

21.16. The submissions of KE have been reviewed. For any future unbundling cost related to generation plants, KE may file separate tariff petition.

22. WHAT WILL BE THE MECHANISM TO ENSURE AVAILABILITY OF EACH PLANT?

22.1. According to KE, in the current MYT, it maintains the record of the availability of its plants on an hourly basis data of which is also submitted to the Authority in the form of hourly EMO Report on a weekly basis. In addition, a mechanism is in place for recording and reporting of all data related to hourly availability of plants. Further, KE proposed that capacity payment shall be done on a monthly basis based on available capacity after considering the proposed outages for each plant. For that purpose, KE requested to determine Annual Dependable Capacity (ADC) on the basis of ADC Test to be carried out at start of each year by the plant teams, results of which shall be submitted to the Authority as done by IPPs.

22.2. KE further submitted that, to align its practices with IPPs, a mechanism for capacity declaration and its adjustment, will be put in place in the Service Level Agreements (SLAs) covering the following points, which are generally covered under PPAs of IPPs:

- Declaration of Available Capacity – Determined based on ADC Test as mentioned above.
- Revised declared available capacity
- Adjusted declared available capacity
- Adjustment mechanism for any Forced Outages in the above declared available capacities

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22.3. According to KE, full scope SLA shall be prepared and submitted for NEPRA's approval based on Tariff determination.

22.4. The submissions of the Petitioner have been reviewed. The capacity payments to KE shall be linked to the hourly availability of the power plants in line with IPPs in NTDC/CPPAG system. Further, KE is directed to incorporate a mechanism for hourly capacity declaration and adjustment into the Service Level Agreement, which shall be submitted to the Authority for review.

23. WHAT WILL BE THE ADJUSTMENT MECHANISM FOR OVER RECOVERY DUE TO SETTLEMENT OF IMBALANCES UNDER CTBCM?

23.1. According to KE, its plants will be dedicated for supplying electric power to KE's regulated consumers only. As per the CTBCM design and Market Commercial Code, energy imbalances are to be settled at the prevailing marginal price for each hour.

23.2. Considering that KE is the Supplier of Last Resort (SoLR), any imbalances which may arise due to Demand or Generation for the regulated market, shall be treated as pass-through. KE has also proposed the same in its plan for CTBCM Evaluation & Integration Plan and is also in line with consultative session held on December 28, 2022, wherein this was discussed and proposed that imbalances for regulated market (for DISCOs and KE) shall be treated as pass-through

23.3. The submissions of KE have been evaluated. The issue will be addressed separately in the Integration Plan which is under process and shall be approved in due course of time.

24. WHETHER A CLAWBACK MECHANISM IS REQUIRED TO BE INCLUDED IN THE TARIFF?

24.1. According to KE, a claw back mechanism is proposed for sharing of O&M savings considering O&M incurrences may vary over the remaining useful life of the plants. As per the mechanism, in case O&M expenses recovery is higher than the actual incurred O&M expense at completion of an overhaul cycle and at end of plant life, gain shall be shared between Consumer and KE in 60:40 ratio. However, in case of under recovery of O&M expense at the completion of an overhaul cycle, the difference shall be carried over to the next overhaul cycle or the end of plant life as applicable.

24.2. KE further submitted that overhaul cycle for a plant is considered to have been completed when all the major components of the plant, for e.g. GTs & STs, have undergone at least one minor & one major overhaul/ Inspection. For the purpose of calculation of sharing of O&M savings/ (loss) at the completion of each major overhaul cycle, O&M expenses (O&M Expenses as per Profit & Loss Account & Addition to CWIP) as per the audited financial statements shall be used.

24.3. The submissions of KE have been examined. In line with the mechanism in place in the tariff of thermal IPPs, the Authority has decided that any savings in fuel and O&M shall be shared in the ratio of 60:40 between consumers and power producer in case of all plants except BQPS-I. In case of BQPS-I, the Authority approved sharing ratio of 50:50 with respect to O&M savings and further approved following sharing mechanism for fuel.:

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Efficiency Gains	Sharing Ratio Consumers : KE
From 0.01% to 0.50%	70:30
From 0.51% to 1%	60:40
From 1.01% to 1.50%	50:50
Above 1.50%	40:60

24.4. Fuel savings shall be shared annually while O&M savings will be accounted for after every five years.

25. KE TO PROVIDE STATUS OF INVESTMENT ALLOWED FOR GENERATION IN PREVIOUS MULTI YEAR TARIFF ALONG WITH BENEFITS ACHIEVED

25.1. KE vide letter dated May 16, 2023 submitted that in the generation segment, since the start of control period and until June 2022, it has carried out an investment of PKR 110,230 million including PKR 73,238 million CAPEX on BQPS-III plant and PKR 36,991 million worth of investments on existing plants as shown in table below. A comparative analysis of investments allowed by NEPRA and investment actually incurred by KE in the Generation Segment during the period FY 2017 – FY 2023 is presented below:

Description	Allowed by NEPRA	Actual CAPEX	Projected CAPEX	CAPEX	Excess / Shortfall
BQPS-III	72,240	73,324	28,904	102,229	29,989
Others	25,594	36,991	4,314	41,305	10,991
Total	**97,834**	**110,315**	**33,218**	**143,534**	**40,980**

25.2. According to KE, additional investment is mainly on account of significant devaluation of Rupee against USD and higher inflation rates compared to original estimates used by NEPRA. Additionally, certain changes in scope necessary to ensure safe and reliable operations of the plants also contributed to the excess spending.

25.3. KE further submitted that due to the investments incurred, it was able to ensure availability and reliability of plants, avoid outages and ensured continued power supply across its service territory. Consequently, the following benefits have been realized during the current MYT (FY 2016 vs FY 2022):

- Increase in Fleet Reliability from 96% to 99.5%.
- Increase in Fleet Availability from 81% to 91%.
- Increase in Fleet Gross Efficiency - HHV from 37% to 39%.
- Increase in Generation Capacity from 1,875MW to 2,817MW21
- Reduction in Fleet Energy Loss Rate from 6% to 2%.
- Reduction in Fleet Forced Outage Numbers from 347 to 104.

25.4. Furthermore, KE mentioned the following major achievements in the expired MYT :

- Addition of highly efficient 900 MW RLNG BQPS III plant to KE's generation fleet.

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- Efficiency improvements which have already been passed on to the consumers in the form of lower heat rates, as mentioned earlier in case of BQPS-I.
- Black Start Facility at KCCP and BQPS-II have been established which has enabled KE to become independent from IPPs and NTDC, with lesser restoration time, thus enhancing KE's technical readiness to export power to the network in case of black outs.

26. WHAT WILL BE THE TREATMENT OF THE RESIDUAL VALUE OF THE POWER PLANT?

26.1. KE with reference to the above issue vide letter dated 24th July 2023 submitted that that these plants have been installed by KE and there is no requirement to transfer to power purchaser at the end of useful life as KE itself is the power purchaser. KE proposed that in line with IPPs, the equity component (representing 30% of Regulatory Asset Base) may not be redeemed and re-imbursement of the same may be considered through residual value at the end of plant life and hence, no depreciation may be given on equity portion. Accordingly, instead of equity redemption through depreciation, the same may be allowed to the extent of debt component only and on equity component return be allowed till the end of useful life of plants thereby aligning KE's tariff to that being allowed to other IPPs. Further, we would also like to request that to align with IPPs, the depreciation component related to debt may also be allowed to be redeemed in ten years as allowed to IPP and to match the debt repayment mode.

26.2. The submissions of KE have been examined. Since full depreciation of the capitalized cost is being allowed to KE, it would be justified to credit the entire actual realized residual value of the asset to the consumers. Accordingly, the Authority has decided that the scrap/residual value realized at the time of actual disposal of the plant, as and when occur, shall be credited to the consumers and shall be adjusted in the quarterly adjustment of supply tariff. In case of BQPS-III, the cost of land has already been paid by the consumers, therefore, the sale proceeds of land in case of disposal shall also be credited to the consumers. Further, In the event of dismantling, retirement or disposal of a plant or an asset before the completion of its useful life, any gain or loss shall be captured as other income based on the cost basis, rather than the revalued amount.

27. SUMMARRY OF TARIFF

27.1. The summary of levelized tariff is provided hereunder:

Description	BQPS-I	BQPS-II	KCCPP	KTGEPS	SGEPS	BQPS-III
Net Capacity (MW)	693	495	221	92	93	900
Fuel	RFO	RLNG				
Energy Purchase Price (Rs./kWh):						
Fuel Cost Component	34.1041	30.6886	30.4024	33.5986	33.6946	20.6731
Variable O&M Local	0.1934	0.0625	0.0795	0.6406	0.6406	0.0443
Variable O&M Foreign	0.1300	0.6333	1.6871	1.2345	1.2345	0.3526
Total EPP	**34.4275**	**31.3843**	**32.1690**	**35.4737**	**35.5697**	**21.0700**
Capacity Purchase Price (Rs./kW/h):						
Fixed O&M Local	0.5855	0.2129	0.4601	0.7938	0.7938	0.3324
Fixed O&M Foreign	0.2042	0.2473	0.2641	-	-	0.1091

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Description	BQPS-I	BQPS-II	KCCPP	KTGEPS	SGEPS	BQPS-III
Insurance	0.0092	0.0570	0.0618	0.0436	0.0381	0.1127
Cost of Working Capital	0.5380	0.5041	0.5422	0.2466	0.2604	0.4933
RoRB - Cost of Debt / Debt Servicing	0.2733	1.0835	1.0100	0.4822	0.6263	1.2235
RoRB - Cost of Equity / ROE	0.1504	0.6227	0.5993	0.2885	0.3908	0.6730
Depreciation	0.4337	0.4985	0.5803	0.2770	0.3598	-
Transaction Cost						0.0237
Total CPP (Rs./kW/h)	**2.1943**	**3.2261**	**3.5178**	**2.1316**	**2.4692**	**2.9678**
CPP @ Notional Plant Factor (Rs./kWh)	3.6572	5.3768	5.8630	3.5527	4.1153	3.2976
Total Tariff (Rs./kWh)	**38.0847**	**36.7611**	**38.0319**	**39.0264**	**39.6849**	**24.3676**
Notional Plant Factors (%)	60%	60%	60%	60%	60%	90%

28. ORDER

I. The Authority hereby determines and approves the reference generation tariff along with terms & conditions for K-Electric Limited for its power generation plants and adjustments/indexations for delivery of electricity. The schedules of tariff are attached as Annex-I to Annex-VIII for each plant and debt service schedules of BQPS III are attached as Annex- IX to Annex-XIII for each type of loan facility and transaction cost.

II. ONE TIME ADJUSTMENT

The RAB of BQPS-III including LDs shall be subject to verification and KE would be required to file true-up request after HSD commissioning.

III. ADUSTMENTS DUE TO PERFORMANCE TEST

Net efficiency and net output of BQPS-III shall be subject to performance tests and in case the net efficiency and net output of the complex are established higher than the approved values, downward adjustments shall be made in fuel cost component and capacity charge components respectively. No adjustments shall be made in tariff components in case the net efficiency and net output of the complex are established lower than the approved values.

IV. INDEXATIONS/ADJUSTMENTS

Following indexations/adjustments shall be applicable to the reference tariff:

i. Fuel Cost Component

The fuel cost component of tariff shall be adjusted on account of fuel price variation as and when notified by the relevant Authority/body as per the following mechanism:

$FCC_{(Rev)}$	=	$FCC_{(Ref)} \times$ Fuel $Price_{(Rev)}$ / Fuel $Price_{(Ref)}$
Where:		
$FCC_{(Rev)}$	=	The revised fuel cost component
$FCC_{(Ref)}$	=	The reference fuel cost component
Fuel $Price_{(Rev)}$	=	The revised HHV fuel price
Fuel $Price_{(Ref)}$	=	The reference HHV fuel price

The reference HHV RLNG price for all plants except BQPS-III is Rs. 3,717/MMBtu and for BQPS-III is Rs. 3,262/MMBtu. The reference gas price is Rs. 857/MMBtu. The reference HSD price is Rs. 232.52/Litre and the reference RFO price is 133,637/ton.

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The reference RFO HHV calorific value of 40,760.748/Kg. shall also be subject to adjustment as per actual on quarterly basis in line with the mechanism provided in case of RFO based IPPs. The reference fuel cost components for combined and open cycle operation on all fuels are provided under Para 12.3.

ii. Indexation Applicable to O&M

O&M components of tariff shall be adjusted on account of local NCPI, US CPI and exchange rate quarterly on 1 July, 1st October, 1st January and 1st April based on the latest available information with respect to CPI notified by the Pakistan Bureau of Statistics (PBS), US CPI (All Urban Consumers) issued by US Bureau of Labor Statistics and revised TT & OD selling rate of US Dollar notified by the National Bank of Pakistan as per the following mechanism:

F V. $O\&M_{(Rev)}$	=	F V. $O\&M_{(REF)}$ * US $CPI_{(REV)}$ / US $CPI_{(REF)}$ *$ER_{(REV)}/ER_{(REF)}$
L V. $O\&M_{(REV)}$	=	L V. $O\&M_{(REF)}$ * $NCPI_{(REV)}$ / $NCPI_{(REF)}$
L F. $O\&M_{(REv)}$	=	L F. $O\&M_{(REF)}$ * $NCPI_{(REV)}$ / $NCPI_{(REF)}$
F F. $O\&M_{(REV)}$	=	F F. $O\&M_{(REF)}$ * US $CPI_{(REV)}$ / US $CPI_{(REF)}$ *$ER_{(REV)}/ER_{(REF)}$
Where:		
F V. $O\&M_{(REV)}$	=	The revised Variable O&M Foreign Component of Tariff
L V. $O\&M_{(REV)}$	=	The revised Variable O&M Local Component of Tariff
L F. $O\&M_{(REV)}$	=	The revised Fixed O&M Local Component of Tariff
F F. O&M(REV)	=	The revised Fixed O&M Foreign Component of Tariff
F V. O&M(REF)	=	The reference Variable O&M Foreign Component of Tariff
L V. O&M(REF)	=	The reference Variable O&M Local Component of Tariff
L F. O&M(REF)	=	The reference Fixed O&M Local Component of Tariff
F F. O&M(REF)	=	The reference Fixed O&M Foreign Component of Tariff
CPI(REV)	=	The revised NCPI (General)
CPI(REF)	=	The reference NCPI (General) of 227.96 for May 2023
US CPI(REV)	=	The revised US CPI (All Urban Consumers)
US CPI(REF)	=	The reference US CPI (All Urban Consumers) of 304.13 for May 2023
ER(REV)	=	The revised TT& OD selling rate of US Dollar
ER(REF)	=	The reference TT& OD selling rate of Rs. 287.10/US$

iii. Indexation Applicable to ROE

ROE component of tariff shall be quarterly indexed on account of variation in Rs./US$ parity according to the following formula:

$ROE_{(Rev)}$	=	$ROE_{(Ref)}$ *$ER_{(Rev)}/ER_{(Ref)}$
Where		
$ROE_{(Ref)}$	=	Reference ROE Component of the Tariff
$ER_{(Rev)}$	=	The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan of last day of preceding quarter
$ER_{(Rev)}$	=	The reference exchange rate of Rs. 287.10/US$

iv. Indexation Applicable to Debt Servicing

Local Loan

The interest cost component of local loans shall be subject to quarterly variation in interest rate as per the following mechanism. The reference KIBOR is 22.91%.

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ΔI	=	$P_{(Rev)} \times (\text{Interest Rate}_{(REV)} - 22.91\%)/4$
Where:		
ΔI	=	The interest payment obligation will be enhanced or reduced to the extent of ΔI for each quarter under adjustment applicable on quarterly basis.
$P_{(Rev)}$	=	The outstanding principal (as indicated in the attached debt service schedule to this order) on a quarterly basis.
$\text{Interest Rate}_{(REV)}$	=	Revised 3 Month KIBOR notified by State Bank of Pakistan

Sinosure Loan (Unhedged)

Sinorue Loan (Unhedged) of BQPS-III and its interest shall be adjusted for exchange rate and interest rate variation quarterly on 1st July, 1st October, 1st January and 1st April on account of TT & OD selling rate of US dollar for the quarter immediately preceding the relevant period as notified by the National Bank of Pakistan, wherein the reference TT& OD selling rate is Rs. 287.10/US$. The reference SOFR is 5.09%.

ΔI	=	$P_{(Rev)} \times (\text{Interest Rate}_{(REV)} - 5.09\%)/4$
Where:		
ΔI	=	The interest payment obligation will be enhanced or reduced to the extent of ΔI for each quarter under adjustment applicable on quarterly basis.
$P_{(Rev)}$	=	The outstanding principal (as indicated in the attached debt service schedule to this order) on a quarterly basis.
$\text{Interest Rate}_{(REV)}$	=	Revised Overnight SOFR

Sinosure Loan (Hedged)

The hedging cost component of Sinsosure Loan (Hedged) shall be subject to variation on the basis of 3 Month KIBOR. The reference KIBOR is 22.91%

ΔI	=	$P_{(Rev)} \times (\text{Interest Rate}_{(REV)} - 22.91\%)/4$
Where:		
ΔI	=	The interest payment obligation will be enhanced or reduced to the extent of ΔI for each quarter under adjustment applicable on quarterly basis.
$P_{(Rev)}$	=	The outstanding principal (as indicated in the attached debt service schedule to this order) on a quarterly basis.
$\text{Interest Rate}_{(REV)}$	=	Revised 3 Month KIBOR notified by State Bank of Pakistan

Moreover, Loan Spread amount shall be adjusted for exchange rate variation quarterly on 1st July, 1st October, 1st January and 1st April on account of TT & OD selling rate of US dollar for the quarter immediately preceding the relevant period as notified by the National Bank of Pakistan, wherein the reference TT & OD selling rate is Rs. 287.10/US$.

Hermes Loan (Hedged)

The hedging cost component of Hermes Loan (Hedged) shall be subject to variation on the basis of 3 Month KIBOR. The reference KIBOR is 22.91%.

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ΔI	=	$P_{(Rev)} \times (\text{Interest Rate}_{(REV)} - 22.91\%)/4$
Where:		
ΔI	=	The interest payment obligation will be enhanced or reduced to the extent of ΔI for each quarter under adjustment applicable on quarterly basis.
$P_{(Rev)}$	=	The outstanding principal (as indicated in the attached debt service schedule to this order) on a quarterly basis.
$\text{Interest Rate}_{(REV)}$	=	Revised 3 Month KIBOR notified by State Bank of Pakistan

Moreover, Loan Spread amount shall be adjusted for exchange rate variation quarterly on 1st July, 1st October, 1st January and 1st April on account of TT & OD selling rate of US dollar for the quarter immediately preceding the relevant period as notified by the National Bank of Pakistan, wherein the reference TT & OD selling rate is Rs. 287.10/US$.

v. **Cost of Working Capital**

The cost of working capital shall be adjusted on quarterly basis for the following variations:

- Fuel Price
- Load Factor
- SBLC Amount
- Value of Stores & Spares
- Fuel Inventory
- Receivable Cycle
- SBLC Charges
- KIBOR

vi. Clawback Mechanism

Fuel savings shall be shared annually while O&M savings will be accounted for after every five years.

vii. Adjustment In Insurance As Per Actual

The actual insurance cost for the minimum cover required and not exceeding 0.7% of the EPC cost shall be treated as pass through. Insurance component of tariff shall be adjusted annually as per actual upon production of authentic documentary evidence according to the following formula:

AIC	=	$\text{Ins}_{(Ref)} / P_{(Ref)} * P_{(Act)}$
Where		
AIC	=	Adjusted Insurance Component of Tariff
$\text{Ins}_{(Ref)}$	=	Reference Insurance Component of Tariff
$P_{(Ref)}$	=	Following Reference Premium at Rs. 287.1/US$
$P_{(Act)}$	=	Actual Premium or 0.7% of the EPC cost at exchange rate prevailing on the 1st day of the insurance coverage period whichever is lower

V. TERMS & CONDITIONS

The following terms and conditions shall apply to the determined tariff:

i. The tariff control period shall be 7 year or remaining useful life, whichever is lower except for BQPS-III which shall be 11 years.

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ii. The tariff beyond the approved control period shall be indicative only and shall require approval of the Authority subject to the approval of extension in the tariff control period.

iii. The dispatch shall be in accordance with the economic merit order as per Grid Code and shall be subject to the mechanism provided in Para 8.7.

iv. Capacity payments shall be made in accordance with the hourly availability of the generating units.

v. The responsibility of fuel arrangement shall be on KE. In case KE is unable to make the plant available for dispatch due to any reason including but not limited to non-availability of fuel, capacity payment shall not be allowed.

vi. Being an integrated utility, no separate tax/WWPF/WWF is currently applicable on generation segment. In case the same is applicable due to change in law in future on the generation segment, the same shall be allowed as pass-through.

NOTIFICATION:

The above Order of the Authority along with Annexes shall be notified in the Official Gazette in terms of Section 31(7) of the Regulations of Generation, Transmission and Distribution of Electric Power Act, 1997

AUTHORITY

* Mathar Niaz Rana (nsc)
Member

Engr. Maqsood Anwar Khan
Member

Engr. Rafique Ahmed Shaikh
Member

Amina Ahmed
Member

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Waseem Mukhtar
Chairman

+ My decision is attached Maqsood

DECISION OF MEMBER (TARIFF)
DETERMINATION OF THE AUTHORITY IN THE MATTER OF TARIFF PETITION FILED BY K-ELECTRIC LIMITED FOR POWER GENERATION PLANTS

Several components in KE's current generation tariff are likely to escalate consumer tariffs and may not align with prudent cost practices. My opinion on these components is as under: -

1. Take or Pay / Take and Pay Tariff

The dispatch factor of KE power plants BQPS-I (Unit1-6), KCCPP, KTGEPS and SGEPS has been decreasing since 2019. It has substantially reduced in FY 2023 after induction of BQPS-III (Unit 1 and 2) as tabulated below: -

Power Plant	Net Capacity	Despatch Factor				
	MW	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
BQPS-II	476	95.1%	97.3%	95.5%	86.2%	67.2%
BQPS-III U-1	458	0.0%	0.0%	0.0%	0.0%	94.2%
BQPS-III U-2	395	0.0%	0.0%	0.0%	0.0%	86.0%
KCCP	222	71.2%	57.8%	53.9%	32.5%	2.6%
KTGEPS	94	51.5%	41.9%	53.7%	14.7%	1.3%
SGEPS	95	76.2%	49.9%	27.3%	12.8%	3.1%
BQPS-I Unit-1	151	67.2%	48.9%	72.2%	43.3%	23.1%
BQPS-I Unit-2	148	64.7%	51.7%	69.6%	55.3%	37.4%
BQPS-I Unit-5	156	69.3%	58.7%	83.5%	74.2%	47.3%
BQPS-I Unit-6	162	62.1%	63.5%	83.1%	75.6%	29.2%

KE presently also does not have firm GSA with SSGC, resulting in very nominal dispatch of power plants like KTGTPS & STGTPS. These plants also may not operate due to non-availability of gas. Moreover, KE's current share from the National Grid is approximately 1,000 MW, expected to increase proportionally up to 2,600 MW once interconnectivity is established. KE is also actively working on the option of induction of renewable energy.

It is important to highlight that these plants will get payments many times their actual RAB under the proposed tariff structure over the remaining proposed period without supplying much energy to the system for the reasons explained above. Moreover, the per unit O&M cost of these power plants is also on a high side.

Considering the above factors, these power plants may be given Take and Pay Tariff for the control period. KE may consider developing a proposal for decommissioning of these old plants in view of less expensive power options becoming available to KE as explained above.

Considering the dispatch factor & efficiency of BQPS-II and BQPS-III (Unit 1 & 2), these power plants may be given Take or Pay Tariff for the control period subject to following Paras: -

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2. **Take or Pay Tariff for Plants on Backup Fuel HSD**

Subject to and furtherance of above Para 1, sanctioning a "take or pay" tariff structure for KE plants operating on backup fuel (HSD); would not be a prudent decision, as HSD fuel being expensive would be on lower end of the merit order, are unlikely to operate but would nevertheless become eligible for capacity payments, which would otherwise be deducted due to the plant's non-availability on its primary fuel. The imposition of such capacity payments on consumers may not be justifiable. Therefore, authorizing a "take or pay" tariff for plants on backup fuel (HSD) may not be allowed.

3. **Take or Pay for Dedicated Contract for RLNG Supply**

The approval of a Take-or-Pay fuel arrangement for RLNG would result in the out-of-merit operation of either BQPS-II or BQPS-III if fuel prices disrupt the merit order. This is particularly likely following the introduction of central dispatch, the increase in power imports by KE from CPPAG, and KE's expansion of self-generation through renewables. Consequently, the associated costs would be passed on to consumers through monthly Fuel Cost Adjustments (FCAs).

The current arrangements in public sector plants have resulted in the expensive generation for many of these plants as compared to other cheaper fuel based available sources and this issue has been raised in nearly every FCA hearing. The government is actively exploring ways to prevent the risks associated with Take-or-Pay arrangements for RLNG from being passed on to consumers. As a private sector utility, KE has the flexibility to tailor and negotiate RLNG contracts in a manner that mitigates these risks—a flexibility that government-owned RLNG plants do not possess. Therefore; KE's request to incorporate the Take-or-Pay arrangement of the RLNG contract into the tariff is unjustified, as it runs counter to consumer interests and should not be permitted. If this decision is made now, KE will have ample time before the implementation of central dispatch, the increase in power imports from CPPAG, and the expansion of renewable generation, to negotiate more consumer-friendly RLNG contracts.

Therefore, in my opinion, RLNG fuel arrangements of KE now and in future should not be allowed on Take-or-Pay basis.

4. **Dollar-based Indexation on Return on Equity (ROE)**

The Authority has allowed 14% dollar based ROE to KE which is excessive and unfair. Most of the generating units of KE are Brownfield based on utilization of old existing assets. The rationale for high returns for new IPPs usually stems from compensating higher risks and uncertainties associated with

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new projects, which don't seem applicable in this case. Many of KE's plants, with the exception of BQPS-III, have substantially repaid their debts and are exposed to lesser risks compared to any new investments, which warrants consideration for a lesser return.

Furthermore, with approximately 66.40% of KE's equity being foreign, applying dollar-based indexation on the ROE across the entire equity base; effectively allows KE to earn a dollar-denominated return on the 33.60% local equity portion. This not only over-compensates the local equity but also subjects KE's consumers to unnecessary foreign exchange risk, particularly from Rupee-Dollar depreciation, on the local portion of the equity.

The decision to grant KE a 14% dollar-based ROE in the generation tariff; sets a significant precedent that other Independent Power Producers (IPPs) might seek to follow. IPPs that currently receive their ROE in Pakistani Rupees or at a lower rate may now push for similar dollar-based indexation on their returns, arguing for parity under the regulatory framework. Such a shift could have broader financial implications, ultimately increasing the burden on consumers by exposing them to currency depreciation risks and driving up overall returns for power producers.

Therefore in my opinion the return may not exceed USD based return of 11.5% for foreign equity. Whereas for PKR equity, the return may not exceed 15.5% (11.5% + 4%), as per the Independent Consultant's report presented to the Authority on March 01, 2022.

5. Indexation of O&M Component

In the new MYT, KE's O&M component has been divided into local and foreign portions. The foreign O&M component is now indexed to both the US -CPI and the dollar exchange rate, while the local portion is indexed to the local CPI. Previously, KE's O&M costs were indexed solely to the local CPI. Given that KE manages its O&M in-house, it would be fair to continue with the previous practice of O&M indexation i.e. on local CPI basis in the current MYT as well, in order to protect the consumers from exchange rate variation and impact of US-CPI inflation.

6. Outage Period

Technical Section recommended outage allowance @ 8% for BQPS-III, therefore, allowing outages @ 10%, would increase capacity payments for the additional allowance period. The capacity charges of 2% outage hour will be borne by consumers. Therefore, the outage period over and above technically recommended percent is not prudent and may not be allowed.

In relation to the above, it is noted that in 2017, Kolachi Portgen submitted a tariff petition to NEPRA, indicating an availability factor of 92%. This petition,

intended for KE as the purchaser, was based on the same machinery and technology subsequently utilized by KE for BQPS III. The 92% availability factor in Kolachi Portgen's petition suggests that a thorough analysis was conducted by both KE and Kolachi Portgen, confirming that such an availability factor was both realistic and achievable. Furthermore, other gas-based combined cycle plants in Pakistan, including Haveli Bahadur Shah, which served as benchmarks for BQPS III, were also allocated an availability factor of 92%. Additionally, KE's Gas Supply Agreement supports an availability factor of over 92%.

7. Regulatory Asset Base (RAB) of BQPS-III

KE requested investment approval for the BQPS-III plant in its MYT Review Motion filed on 20 April 2017, with a project completion target by December 2019. The Authority approved this request on October 09, 2017, allowing KE to earn a Return on Regulatory Asset Base (RoRB) from FY-2018 to FY-2019, with tariff provisions for depreciation and WACC starting in FY-2020.

Despite the initial timeline, construction began in FY-2019 and the plant was only operational by the second half of FY-2023.

Accordingly, KE continued recovering both depreciation and RoRB for BQPS-III during the previous MYT period. The details of depreciation and RoRB as allowed to KE till FY-2023 are given hereunder: -

	Allowed Investment	Depreciation	WACC	RAB	Avg. RAB	RoRB
FY 2016-17	-	-	14.26%	-	-	-
FY 2017-18	25,663	-	14.26%	25,663	12,831	1,830
FY 2018-19	27,533	-	14.26%	53,195	39,429	5,623
FY 2019-20	19,043	2,332	14.26%	69,907	61,551	8,777
FY 2020-21		2,332	14.26%	67,575	68,741	9,802
FY 2021-22		2,332	14.26%	65,244	66,410	9,470
FY 2022-23		2,332	14.26%	62,912	64,078	9,138
	72,238	9,326				44,640

Now KE has requested the approval of the tariff of BQPS-III under the cost-plus mode. The Authority has decided to base the financial statements of the company to compute the allowable costs associated with BQPS-III and the Authority has not deducted the cumulative amount of RoRB and Depreciation of Rs. 53.9 billion. This leads to excessive returns and this would duplicate recovery of certain costs for KE's BQPS-III, a decision with which I respectfully disagree.

Guiding principle as given in Act speaks that the Authority should only allow prudently incurred cost, which means assessing true and fair cost of project and any amount already paid to KE should be deducted from the allowable costs to avoid duplication.

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Additionally, KE should provide complete documentation for the RAB (Rs. 103 billion) to allow the Authority to verify and assess its prudence and reasonableness, as is required for other IPPs under the cost-plus tariff regime. The Authority in the earlier MYT, approved cost of Rs. 72 billion for BQPS-III, which included upfront impact of exchange rate and other associated risks. By taking actual cost in the financial statements of KE, the Authority is allowing exchange rate variation beyond the allowed cap.

In my view, the correct approach would be to allow the ROEDC amount related to the allowed construction period to the RAB and deduct the earlier allowed amounts of depreciation and RoRB from the previous MYT pertaining to the period in which the project was delayed and was not operational, to determine the prudent cost for KE's BQPS-III.

8. **Mechanism for Availability of Plants**

As KE would be the System Operator (SO) for its own plants, therefore; a transparent verification mechanism of availability of KE plants needs to be defined, as it is not already available. In CPPA-G system, every plant declares its availability to SO based on which capacity charges invoice is processed for payment. These plants also undergo an annual capacity test to determine the revised capacity, which forms the basis for capacity payments. Therefore, considering future central dispatch and single grid code, NPCC being the SO, needs to ensure availability and operations of KE plants like other IPPs. Further it is recommended that a directive be issued in this tariff to ensure annual capacity tests are conducted for KE's plants.

9. On the remaining matters, I agree with my learned Authority Members and their decision.

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Mathar Niaz Rana (nsc)
Member (Tariff)

K-Electric Limited
BQPS - I (Unit 2, 3, 5 & 6)
Reference Generation Tariff

Energy Purchase Price (Rs./kWh)					
Description	Fuel	Unit-1	Unit-2	Unit-5	Unit-6
Fuel Cost Component	Gas	9.6249	9.5496	9.2542	9.5982
	RLNG	41.7506	41.4241	40.1426	41.6347
	RFO	34.6414	34.5148	33.3197	33.9404
Variable O&M	Local	0.2959	0.2631	0.1039	0.1109
	Foreign	0.0385	0.0487	0.1452	0.2878
	Total	0.3344	0.3118	0.2490	0.3987

Year	Capacity Purchase Price (Rs./kW/h)								CPP @ 60 % Plant Factor	
	Fixed O&M		Insurance	Cost of Working Capital	RoRB		Depreciation	Total	Rs./kWh	Cents / kWh
	Local	Foreign			Cost of Debt	Cost of Equity				
1	0.5855	0.2042	0.0092	0.5905	0.3488	0.1920	0.5823	2.5125	4.1875	1.4585
2	0.5855	0.2042	0.0092	0.5461	0.3405	0.1874	0.3324	2.2053	3.6754	1.2802
3	0.5855	0.2042	0.0092	0.5461	0.2819	0.1552	0.3324	2.1145	3.5242	1.2275
4	0.5855	0.2042	0.0092	0.5302	0.3673	0.2022	0.4017	2.3003	3.8338	1.3353
5	0.5855	0.2042	0.0092	0.5195	0.3755	0.2067	0.4482	2.3488	3.9147	1.3635
6	0.5855	0.2042	0.0092	0.5195	0.2966	0.1633	0.4482	2.2264	3.7107	1.2925
7	0.5855	0.2042	0.0092	0.5195	0.2177	0.1198	0.4482	2.1041	3.5068	1.2214
8	0.5855	0.2042	0.0092	0.5195	0.1387	0.0764	0.4482	1.9817	3.3028	1.1504
9	0.5855	0.2042	0.0092	0.5195	0.0598	0.0329	0.4482	1.8593	3.0988	1.0793
10	0.5855	0.2042	0.0092	0.5195	0.0403	0.0222	0.4579	1.8388	3.0647	1.0675
Average Tariff										
1-10	0.5855	0.2042	0.0092	0.5330	0.2467	0.1358	0.4348	2.1492	3.5819	1.2476
Levelized Tariff										
1-10	0.5855	0.2042	0.0092	0.5380	0.2733	0.1504	0.4337	2.1943	3.6572	1.2738

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

K-Electric Limited
BQPS - II
Reference Generation Tariff (RLNG)

Year	Energy Purchase Price (Rs./kWh)				Capacity Purchase Price (Rs./kW/m)								Total Tariff @ 60%		
	Fuel Cost Component	Variable O&M		Total	Fixed O&M		Insurance	Cost of Working Capital	RoRB		Depreciation	Total CPP	Total CPP @60%	Rs./kWh	Cents / kWh
		Local	Foreign		Local	Foreign			Cost of Debt	Cost of Equity					
1	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	1.6539	0.9505	0.4985	4.1243	6.8738	38.2581	13.3257
2	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	1.5661	0.9000	0.4985	3.9860	6.6433	38.0277	13.2454
3	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	1.4783	0.8495	0.4985	3.8477	6.4129	37.7972	13.1652
4	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	1.3905	0.7991	0.4985	3.7095	6.1825	37.5668	13.0849
5	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	1.3027	0.7486	0.4985	3.5712	5.9520	37.3364	13.0047
6	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	1.2149	0.6982	0.4985	3.4330	5.7216	37.1059	12.9244
7	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	1.1271	0.6477	0.4985	3.2947	5.4912	36.8755	12.8441
8	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	1.0393	0.5973	0.4985	3.1564	5.2607	36.6451	12.7639
9	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	0.9515	0.5468	0.4985	3.0182	5.0303	36.4146	12.6836
10	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	0.8637	0.4963	0.4985	2.8799	4.7999	36.1842	12.6033
11	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	0.7759	0.4459	0.4985	2.7417	4.5694	35.9538	12.5231
12	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	0.6881	0.3954	0.4985	2.6034	4.3390	35.7234	12.4428
13	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	0.6003	0.3450	0.4985	2.4652	4.1086	35.4929	12.3626
14	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	0.5125	0.2945	0.4985	2.3269	3.8782	35.2625	12.2823
15	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	0.4247	0.2441	0.4985	2.1886	3.6477	35.0321	12.2020
16	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	0.3369	0.1936	0.4985	2.0504	3.4173	34.8016	12.1218
17	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	0.2491	0.1431	0.4985	1.9121	3.1869	34.5712	12.0415
18	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	0.1613	0.0927	0.4985	1.7739	2.9564	34.3408	11.9613
19	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	0.0735	0.0422	0.4985	1.6356	2.7260	34.1103	11.8810
20	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	0.0439	0.0252	0.4985	1.5890	2.6483	34.0326	11.8539
Average Tariff															
1-20	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	0.8227	0.4728	0.4985	2.8154	4.6923	36.0766	12.5659
Levelized Tariff															
1-20	30.6886	0.0625	0.6333	31.3843	0.2129	0.2473	0.0570	0.5041	1.0835	0.6227	0.4985	3.2261	5.3768	36.7611	12.8043

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

K-Electric Limited
KCCP
Reference Generation Tariff (Gas)

Year	Energy Purchase Price (Rs./kWh)				Capacity Purchase Price (Rs./kW/h)									Total Tariff @ 60%	
	Fuel Cost Component	Variable O&M		Total EPP	Fixed O&M		Insurance	Working capital	RoRB		Depreciation	Total CPP	Total CPP @ 60%	Rs./kWh	Cents / kWh
		Local	Foreign		Local	Foreign			Cost of Debt	Cost of Equity					
1	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	1.6014	0.9502	0.5803	4.4600	7.4334	39.6023	13.7939
2	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	1.4992	0.8895	0.5803	4.2972	7.1620	39.3310	13.6994
3	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	1.3970	0.8289	0.5803	4.1344	6.8906	39.0596	13.6049
4	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	1.2948	0.7683	0.5803	3.9715	6.6192	38.7882	13.5103
5	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	1.1926	0.7076	0.5803	3.8087	6.3478	38.5168	13.4158
6	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	1.0904	0.6470	0.5803	3.6459	6.0764	38.2454	13.3213
7	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	0.9882	0.5864	0.5803	3.4830	5.8051	37.9740	13.2268
8	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	0.8860	0.5257	0.5803	3.3202	5.5337	37.7026	13.1322
9	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	0.7838	0.4651	0.5803	3.1574	5.2623	37.4313	13.0377
10	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	0.6816	0.4044	0.5803	2.9945	4.9909	37.1599	12.9432
11	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	0.5794	0.3438	0.5803	2.8317	4.7195	36.8885	12.8487
12	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	0.4772	0.2832	0.5803	2.6689	4.4481	36.6171	12.7541
13	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	0.3750	0.2225	0.5803	2.5060	4.1767	36.3457	12.6596
14	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	0.2728	0.1619	0.5803	2.3432	3.9054	36.0743	12.5651
15	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	0.1707	0.1013	0.5803	2.1804	3.6340	35.8029	12.4705
16	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	0.0685	0.0406	0.5803	2.0176	3.3626	35.5316	12.3760
17	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	0.0511	0.0303	0.5803	1.9899	3.3165	35.4855	12.3600
Average Tariff															
1-17	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	0.7888	0.4680	0.5803	3.1653	5.2755	37.4445	13.0423
Levelized Tariff															
1-17	30.4024	0.0795	1.6871	32.1690	0.4601	0.2641	0.0618	0.5422	1.0100	0.5993	0.5803	3.5178	5.8630	38.0319	13.2469

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

K-Electric Limited
KCCP
Reference Generation Tariff (HSD)

Year	Energy Purchase Price (Rs./kWh)				Capacity Purchase Price (Rs./kW/h)									Total Tariff @ 60%	
	Fuel Cost Component	Variable O&M		Total EPP	Fixed O&M		Insurance	Working capital	Cost of Debt	Cost of Equity	Depreciation	Total CPP	Total CPP @ 60%	Rs./kWh	Cents / kWh
		Local	Foreign		Local	Foreign									
1	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	1.6073	0.9537	0.5824	4.4764	7.4607	60.6400	21.1216
2	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	1.5047	0.8928	0.5824	4.3130	7.1883	60.3676	21.0267
3	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	1.4021	0.8320	0.5824	4.1496	6.9160	60.0953	20.9318
4	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	1.2996	0.7711	0.5824	3.9861	6.6436	59.8229	20.8369
5	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	1.1970	0.7102	0.5824	3.8227	6.3712	59.5505	20.7421
6	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	1.0944	0.6494	0.5824	3.6593	6.0988	59.2781	20.6472
7	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	0.9918	0.5885	0.5824	3.4959	5.8264	59.0057	20.5523
8	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	0.8893	0.5277	0.5824	3.3324	5.5540	58.7333	20.4574
9	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	0.7867	0.4668	0.5824	3.1690	5.2817	58.4609	20.3626
10	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	0.6841	0.4059	0.5824	3.0056	5.0093	58.1886	20.2677
11	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	0.5816	0.3451	0.5824	2.8421	4.7369	57.9162	20.1728
12	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	0.4790	0.2842	0.5824	2.6787	4.4645	57.6438	20.0779
13	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	0.3764	0.2233	0.5824	2.5153	4.1921	57.3714	19.9831
14	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	0.2738	0.1625	0.5824	2.3518	3.9197	57.0990	19.8882
15	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	0.1713	0.1016	0.5824	2.1884	3.6474	56.8266	19.7933
16	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	0.0687	0.0408	0.5824	2.0250	3.3750	56.5543	19.6985
17	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	0.0087	0.0052	0.5824	1.9294	3.2156	56.3949	19.6430
Average Tariff															
1-17	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	0.7892	0.4683	0.5824	3.1730	5.2883	58.4676	20.3649
Levelized Tariff															
1-17	50.7461	0.0823	2.3508	53.1793	0.4618	0.2650	0.0620	0.5442	1.0127	0.6009	0.5824	3.5291	5.8818	59.0610	20.5716

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

K-Electric Limited
KTGEPS
Reference Generation Tariff

Year	Energy Purchase Price (Rs./kWh)				Capacity Purchase Price (Rs./kW/h)								Total CPP @ 60%	Total @ 60% Plant Factor	
	Fuel Cost Component	Variable O&M		Total EPP	Fixed O&M		Insurance	Working capital	RoRB		Depreciation	Total CPP		Rs./kWh	Cents / kWh
		Local	Foreign		Local	Foreign			Cost of Debt	Cost of Equity					
1	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.7645	0.4574	0.2770	2.5828	4.3047	39.7784	13.8552
2	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.7157	0.4282	0.2770	2.5049	4.1748	39.6484	13.8100
3	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.6669	0.3990	0.2770	2.4269	4.0448	39.5185	13.7647
4	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.6181	0.3698	0.2770	2.3489	3.9148	39.3885	13.7194
5	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.5694	0.3406	0.2770	2.2709	3.7849	39.2585	13.6742
6	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.5206	0.3114	0.2770	2.1929	3.6549	39.1286	13.6289
7	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.4718	0.2822	0.2770	2.1150	3.5250	38.9986	13.5836
8	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.4230	0.2531	0.2770	2.0370	3.3950	38.8687	13.5384
9	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.3742	0.2239	0.2770	1.9590	3.2650	38.7387	13.4931
10	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.3254	0.1947	0.2770	1.8810	3.1351	38.6087	13.4478
11	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.2766	0.1655	0.2770	1.8031	3.0051	38.4788	13.4026
12	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.2278	0.1363	0.2770	1.7251	2.8752	38.3488	13.3573
13	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.1790	0.1071	0.2770	1.6471	2.7452	38.2189	13.3120
14	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.1303	0.0779	0.2770	1.5691	2.6152	38.0889	13.2668
15	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.0815	0.0487	0.2770	1.4912	2.4853	37.9589	13.2215
16	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.0327	0.0196	0.2770	1.4132	2.3553	37.8290	13.1762
17	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.0244	0.0146	0.2770	1.3999	2.3332	37.8069	13.1685
Average Tariff															
1-17	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.3766	0.2253	0.2770	1.9628	3.2714	38.7450	13.4953
Levelized Tariff															
1-17	33.5986	0.6406	1.2345	35.4737	0.7938	-	0.0436	0.2466	0.4822	0.2885	0.2770	2.1316	3.5527	39.0264	13.5933

K-Electric Limited
SGEPS
Reference Generation Tariff

Year	Energy Purchase Price (Rs./kWh)				Capacity Purchase Price (Rs./kW/h)									Total Tariff @ 60%	
	Fuel Cost Component	Variable O&M		Total EPP	Fixed O&M		Insurance	Working capital	RoRB		Depreciation	Total CPP	Total CPP @ 60%	Rs./kWh	Cents / kWh
		Local	Foreign		Local	Foreign			Cost of Debt	Cost of Equity					
1	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.9929	0.6197	0.3598	3.0647	5.1078	40.6775	14.1684
2	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.9296	0.5801	0.3598	2.9618	4.9363	40.5059	14.1087
3	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.8662	0.5406	0.3598	2.8589	4.7648	40.3344	14.0489
4	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.8028	0.5010	0.3598	2.7559	4.5932	40.1629	13.9892
5	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.7395	0.4615	0.3598	2.6530	4.4217	39.9914	13.9294
6	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.6761	0.4219	0.3598	2.5501	4.2502	39.8199	13.8697
7	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.6127	0.3824	0.3598	2.4472	4.0787	39.6483	13.8099
8	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.5494	0.3429	0.3598	2.3443	3.9072	39.4768	13.7502
9	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.4860	0.3033	0.3598	2.2414	3.7356	39.3053	13.6905
10	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.4226	0.2638	0.3598	2.1385	3.5641	39.1338	13.6307
11	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.3593	0.2242	0.3598	2.0356	3.3926	38.9623	13.5710
12	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.2959	0.1847	0.3598	1.9327	3.2211	38.7908	13.5112
13	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.2325	0.1451	0.3598	1.8297	3.0496	38.6192	13.4515
14	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.1692	0.1056	0.3598	1.7268	2.8781	38.4477	13.3917
15	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.1058	0.0660	0.3598	1.6239	2.7065	38.2762	13.3320
16	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.0424	0.0265	0.3598	1.5210	2.5350	38.1047	13.2723
17	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.0317	0.0198	0.3598	1.5035	2.5059	38.0755	13.2621
Average Tariff															
1-17	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.4891	0.3052	0.3598	2.2464	3.7440	39.3137	13.6934
Levelized Tariff															
1-17	33.6946	0.6406	1.2345	35.5697	0.7938	-	0.0381	0.2604	0.6263	0.3908	0.3598	2.4692	4.1153	39.6849	13.8227

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
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K-Electric Limited

BQPS - III

Reference Generation Tariff (Gas/RLNG)

Year	Energy Purchase Price (Rs./kWh)				Capacity Purchase Price (Rs./kW/h)									Total Tariff @ 92%	
	Fuel Cost Component	Variable O&M		Total EPP	Fixed O&M		Insurance	Working capital	ROE	Debt Servicing	Transaction Cost	Total	Total @ 90%	Rs/kWh	Cents / kWh
		Local	Foreign		Local	Foreign									
1	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	2.4161	0.0345	4.1712	4.6346	25.7046	8.9532
2	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	2.2553	0.0345	4.0103	4.4559	25.5259	8.8910
3	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	2.0945	0.0345	3.8495	4.2772	25.3472	8.8287
4	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	1.9337	0.0345	3.6887	4.0985	25.1685	8.7665
5	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	1.7729	0.0345	3.5279	3.9198	24.9898	8.7042
6	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	1.6120	0.0345	3.3670	3.7412	24.8112	8.6420
7	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	1.4512	0.0345	3.2062	3.5625	24.6325	8.5798
8	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	1.2904	0.0345	3.0454	3.3838	24.4538	8.5175
9	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	1.1296	0.0345	2.8846	3.2051	24.2751	8.4553
10	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	0.9687	0.0345	2.7237	3.0264	24.0964	8.3930
11	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	0.8079	0.0345	2.5629	2.8477	23.9177	8.3308
12	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	0.2710	-	1.9915	2.2128	23.2828	8.1096
13	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
14	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
15	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
16	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
17	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
18	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
19	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
20	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
21	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
22	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
23	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
24	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
25	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
26	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
27	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
28	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
29	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
30	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
Average Tariff															
1-12	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	1.5003	0.0316	3.2524	3.6138	24.6838	8.5976
13-30	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	-	-	1.7205	1.9117	22.9817	8.0048
1-30	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	0.6001	0.0126	2.3333	2.5925	23.6625	8.2419
Levelized Tariff															
1-30	20.6731	0.0443	0.3526	21.0700	0.3324	0.1091	0.1127	0.4933	0.6730	1.2235	0.0237	2.9678	3.2976	24.3676	8.4875

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

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K-Electric Limited
BQPS - III
Reference Generation Tariff (HSD)

Year	Energy Purchase Price (Rs./kWh)				Capacity Purchase Price (Rs./kW/h)									Total Tariff @ 92%	
	Fuel Cost Component	Variable O&M		Total EPP	Fixed O&M		Insurance	Working capital	ROE	Debt Servicing	Transaction Cost	Total	Total @ 90%	Rs./kWh	Cents / kWh
		Local	Foreign		Local	Foreign									
1	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	3.0402	0.0434	5.2485	5.8316	49.7719	17.3361
2	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	2.8378	0.0434	5.0461	5.6068	49.5471	17.2578
3	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	2.6355	0.0434	4.8438	5.3819	49.3222	17.1795
4	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	2.4331	0.0434	4.6414	5.1571	49.0974	17.1011
5	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	2.2307	0.0434	4.4390	4.9323	48.8726	17.0228
6	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	2.0284	0.0434	4.2367	4.7074	48.6477	16.9445
7	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	1.8260	0.0434	4.0343	4.4826	48.4229	16.8662
8	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	1.6237	0.0434	3.8320	4.2577	48.1980	16.7879
9	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	1.4213	0.0434	3.6296	4.0329	47.9732	16.7096
10	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	1.2189	0.0434	3.4272	3.8080	47.7483	16.6313
11	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	1.0166	0.0434	3.2249	3.5832	47.5235	16.5529
12	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	0.8140	-	2.5059	2.7843	46.7246	16.2747
13	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
14	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
15	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
16	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
17	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
18	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
19	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
20	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
21	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
22	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
23	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
24	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
25	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
26	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
27	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
28	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
29	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
30	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
Average Tariff															
1-12	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	1.8878	0.0398	4.0924	4.5472	48.4874	16.8887
13-30	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	-	-	2.1649	2.4055	46.3458	16.1427
1-30	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	0.7551	0.0159	2.9359	3.2621	47.2024	16.4411
Levelized Tariff															
1-30	43.3356	0.0687	0.5360	43.9403	0.4183	0.1373	0.1418	0.6207	0.8468	1.5396	0.0299	3.7344	4.1493	48.0896	16.7501

Annex - IX

K-Electric
BPQS-III
Debt Service Schedule - Local Loan

Loan	10,541	KIBOR	22.91%
Period (Years)	12	Spread	2.25%
		Total Interest	25.16%

Quarters	Principal Rs. (Mil)	Principal Repayment Rs. (Mil)	Balance Rs. (Mil)	Interest Rs. (Mil)	Debt Service Rs. (Mil)	Principal Repayment (Rs./kW/h)	Interest (Rs./kW/h)	Total (Rs./kW/h)
1	10,541	220	10,321	663	883			
2	10,321	220	10,102	649	869			
3	10,102	220	9,882	635	855			
4	9,882	220	9,663	622	841			
		878		2,569	3,448	0.1115	0.3260	0.4375
5	9,663	220	9,443	608	827			
6	9,443	220	9,223	594	814			
7	9,223	220	9,004	580	800			
8	9,004	220	8,784	566	786			
		878		2,348	3,227	0.1115	0.2980	0.4094
9	8,784	220	8,565	553	772			
10	8,565	220	8,345	539	758			
11	8,345	220	8,125	525	745			
12	8,125	220	7,906	511	731			
		878		2,127	3,006	0.1115	0.2699	0.3814
13	7,906	220	7,686	497	717			
14	7,686	220	7,467	483	703			
15	7,467	220	7,247	470	689			
16	7,247	220	7,027	456	675			
		878		1,906	2,785	0.1115	0.2419	0.3533
17	7,027	220	6,808	442	662			
18	6,808	220	6,588	428	648			
19	6,588	220	6,369	414	634			
20	6,369	220	6,149	401	620			
		878		1,685	2,564	0.1115	0.2138	0.3253
21	6,149	220	5,929	387	606			
22	5,929	220	5,710	373	593			
23	5,710	220	5,490	359	579			
24	5,490	220	5,270	345	565			
		878		1,464	2,343	0.1115	0.1858	0.2973
25	5,270	220	5,051	332	551			
26	5,051	220	4,831	318	537			
27	4,831	220	4,612	304	523			
28	4,612	220	4,392	290	510			
		878		1,243	2,122	0.1115	0.1578	0.2692
29	4,392	220	4,172	276	496			
30	4,172	220	3,953	262	482			
31	3,953	220	3,733	249	468			
32	3,733	220	3,514	235	454			
		878		1,022	1,901	0.1115	0.1297	0.2412
33	3,514	220	3,294	221	441			
34	3,294	220	3,074	207	427			
35	3,074	220	2,855	193	413			
36	2,855	220	2,635	180	399			
		878		801	1,680	0.1115	0.1017	0.2131
37	2,635	220	2,416	166	385			
38	2,416	220	2,196	152	372			
39	2,196	220	1,976	138	358			
40	1,976	220	1,756.83	124	344			
		878		580	1,459	0.1115	0.0736	0.1851
41	1,757	220	1,537	111	330			
42	1,537	220	1,318	97	316			
43	1,318	220	1,098	83	302			
44	1,098	220	878	69	289			
		878		359	1,238	0.1115	0.0456	0.1570
45	878	220	659	55	275			
46	659	220	439	41	261			
47	439	220	220	28	247			
48	220	220	0	14	233			
		878		138	1,017	0.1115	0.0175	0.1290

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
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K-Electric
BPQS-III
Debt Service Schedule - Hermes Loan

Loan	16,255	KIBOR	22.91%
Hedging Ex Ra	186.48	Hedge spread	0.07%
Ref Ex Rate	287.10	Hedging Cost	22.98%
Period (Years)	11.25	Loan spread	1.35%

Quarters	Principal Rs. (Mil)	Principal Repayment Rs. (Mil)	Balance Rs. (Mil)	Hedging Cost Rs. (Mil)	Loan spread Rs. (Mil)	Debt Service Rs. (Mil)	Principal Repayment (Rs./kW/h)	Hedging Cost (Rs./kW/h)	Unhedged Spread (Rs./kW/h)	Total (Rs./kW/h)
1	16,255	361	15,893	934	84	1,379				
2	15,893	361	15,532	913	83	1,357				
3	15,532	361	15,171	892	81	1,334				
4	15,171	361	14,810	872	79	1,312				
		1,445		3,611	327	5,382	0.1833	0.4582	0.0414	0.6829
5	14,810	361	14,449	851	77	1,289				
6	14,449	361	14,087	830	75	1,266				
7	14,087	361	13,726	809	73	1,244				
8	13,726	361	13,365	789	71	1,221				
		1,445		3,279	297	5,020	0.1833	0.4160	0.0376	0.6370
9	13,365	361	13,004	768	69	1,198				
10	13,004	361	12,643	747	68	1,176				
11	12,643	361	12,281	726	66	1,153				
12	12,281	361	11,920	706	64	1,131				
		1,445		2,947	267	4,658	0.1833	0.3739	0.0338	0.5911
13	11,920	361	11,559	685	62	1,108				
14	11,559	361	11,198	664	60	1,085				
15	11,198	361	10,836	643	58	1,063				
16	10,836	361	10,475	623	56	1,040				
		1,445		2,615	236	4,296	0.1833	0.3318	0.0300	0.5451
17	10,475	361	10,114	602	54	1,017				
18	10,114	361	9,753	581	53	995				
19	9,753	361	9,392	560	51	972				
20	9,392	361	9,030	540	49	950				
		1,445		2,283	206	3,934	0.1833	0.2896	0.0262	0.4992
21	9,030	361	8,669	519	47	927				
22	8,669	361	8,308	498	45	904				
23	8,308	361	7,947	477	43	882				
24	7,947	361	7,586	457	41	859				
		1,445		1,951	176	3,572	0.1833	0.2475	0.0224	0.4532
25	7,586	361	7,224	436	39	836				
26	7,224	361	6,863	415	38	814				
27	6,863	361	6,502	394	36	791				
28	6,502	361	6,141	374	34	769				
		1,445		1,619	146	3,210	0.1833	0.2054	0.0186	0.4073
29	6,141	361	5,779	353	32	746				
30	5,779	361	5,418	332	30	723				
31	5,418	361	5,057	311	28	701				
32	5,057	361	4,696	291	26	678				
		1,445		1,287	116	2,848	0.1833	0.1633	0.0148	0.3614
33	4,696	361	4,335	270	24	655				
34	4,335	361	3,973	249	23	633				
35	3,973	361	3,612	228	21	610				
36	3,612	361	3,251	208	19	587				
		1,445		955	86	2,486	0.1833	0.1211	0.0110	0.3154
37	3,251	361	2,890	187	17	565				
38	2,890	361	2,529	166	15	542				
39	2,529	361	2,167	145	13	520				
40	2,167	361	1,806.08	125	11	497				
		1,445		623	56	2,124	0.1833	0.0790	0.0071	0.2695
41	1,806	361	1,445	104	9	474				
42	1,445	361	1,084	83	8	452				
43	1,084	361	722	62	6	429				
44	722	361	361	42	4	406				
		1,445		291	26	1,762	0.1833	0.0369	0.0033	0.2235
45	361	361	-	21	2	384				
46	-	-	-	-	-	-	-	-	-	-
47	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	-	-	-	-	-
		361	-	21	2	384	0.0458	0.0026	0.0002	0.0487

K-Electric
BPQS-III
Debt Service Schedule - Sinosure Loan (Hedged)

Loan	26,341	KIBOR	22.91%
Hedging Ex Ra	222.00	Hedge spread	1.06%
Ref Ex Rate	287.10	**Hedging Cost**	**23.97%**
Period (Years)	11.25	Loan spread	2.90%

Quarters	Principal Rs. (Mil)	Principal Repayment Rs. (Mil)	Balance Rs. (Mil)	Hedging Cost Rs. (Mil)	Loan spread Rs. (Mil)	Debt Service Rs. (Mil)	Principal Repayment (Rs./kW/h)	Hedging Cost (Rs./kW/h)	Unhedged Spread (Rs./kW/h)	Total (Rs./kW/h)
1	26,341	585	25,756	1,579	247	2,411				
2	25,756	585	25,171	1,543	241	2,370				
3	25,171	585	24,585	1,508	236	2,330				
4	24,585	585	24,000	1,473	231	2,289				
		2,341		6,104	955	9,400	0.2971	0.7745	0.1212	1.1928
5	24,000	585	23,415	1,438	225	2,249				
6	23,415	585	22,829	1,403	220	2,208				
7	22,829	585	22,244	1,368	214	2,167				
8	22,244	585	21,658	1,333	209	2,127				
		2,341		5,542	867	8,751	0.2971	0.7033	0.1100	1.1104
9	21,658	585	21,073	1,298	203	2,086				
10	21,073	585	20,488	1,263	198	2,046				
11	20,488	585	19,902	1,228	192	2,005				
12	19,902	585	19,317	1,193	187	1,965				
		2,341		4,981	779	8,102	0.2971	0.6321	0.0989	1.0281
13	19,317	585	18,732	1,158	181	1,924				
14	18,732	585	18,146	1,122	176	1,883				
15	18,146	585	17,561	1,087	170	1,843				
16	17,561	585	16,976	1,052	165	1,802				
		2,341		4,420	692	7,453	0.2971	0.5608	0.0878	0.9457
17	16,976	585	16,390	1,017	159	1,762				
18	16,390	585	15,805	982	154	1,721				
19	15,805	585	15,219	947	148	1,681				
20	15,219	585	14,634	912	143	1,640				
		2,341		3,859	604	6,804	0.2971	0.4896	0.0766	0.8634
21	14,634	585	14,049	877	137	1,600				
22	14,049	585	13,463	842	132	1,559				
23	13,463	585	12,878	807	126	1,518				
24	12,878	585	12,293	772	121	1,478				
		2,341		3,297	516	6,155	0.2971	0.4184	0.0655	0.7810
25	12,293	585	11,707	737	115	1,437				
26	11,707	585	11,122	702	110	1,397				
27	11,122	585	10,537	666	104	1,356				
28	10,537	585	9,951	631	99	1,316				
		2,341		2,736	428	5,506	0.2971	0.3472	0.0543	0.6986
29	9,951	585	9,366	596	93	1,275				
30	9,366	585	8,780	561	88	1,234				
31	8,780	585	8,195	526	82	1,194				
32	8,195	585	7,610	491	77	1,153				
		2,341		2,175	340	4,857	0.2971	0.2760	0.0432	0.6163
33	7,610	585	7,024	456	71	1,113				
34	7,024	585	6,439	421	66	1,072				
35	6,439	585	5,854	386	60	1,032				
36	5,854	585	5,268	351	55	991				
		2,341		1,614	252	4,208	0.2971	0.2048	0.0320	0.5339
37	5,268	585	4,683	316	49	950				
38	4,683	585	4,098	281	44	910				
39	4,098	585	3,512	246	38	869				
40	3,512	585	2,926.82	210	33	829				
		2,341		1,052	165	3,558	0.2971	0.1335	0.0209	0.4515
41	2,927	585	2,341	175	27	788				
42	2,341	585	1,756	140	22	748				
43	1,756	585	1,171	105	16	707				
44	1,171	585	585	70	11	666				
		2,341		491	77	2,909	0.2971	0.0623	0.0098	0.3692
45	585	585	-	35	5	626				
46	-	-	-	-	-	-				
47	-	-	-	-	-	-				
48	-	-	-	-	-	-				
		585		35	5	626	0.0743	0.0045	0.0007	0.0794

Annex-XII

K-Electric
BPQS-III
Debt Service Schedule - Sinosure Loan (Unhedged)

Loan - US$ (Mil)	16.75	Ref SOFR	5.09%
Ref Ex Rate (Rs./	287.10	CAS	0.2616%
Loan - Rs. (Mil)	4,809	Loan spread	2.90%
Period (Years)	11.25	Total Interest	8.25%

Quarters	Principal Rs. (Mil)	Principal Repayment Rs. (Mil)	Balance Rs. (Mil)	Interest Rs. (Mil)	Debt Service Rs. (Mil)	Principal Repayment (Rs./kW/h)	Interest (Rs./kW/h)	Total (Rs./kW/h)
1	4,809	107	4,702	99	206			
2	4,702	107	4,595	97	204			
3	4,595	107	4,488	95	202			
4	4,488	107	4,382	93	199			
		427		384	811	0.0542	0.0487	0.1029
5	4,382	107	4,275	90	197			
6	4,275	107	4,168	88	195			
7	4,168	107	4,061	86	193			
8	4,061	107	3,954	84	191			
		427		348	776	0.0542	0.0442	0.0984
9	3,954	107	3,847	82	188			
10	3,847	107	3,740	79	186			
11	3,740	107	3,633	77	184			
12	3,633	107	3,527	75	182			
		427		313	741	0.0542	0.0397	0.0940
13	3,527	107	3,420	73	180			
14	3,420	107	3,313	71	177			
15	3,313	107	3,206	68	175			
16	3,206	107	3,099	66	173			
		427		278	705	0.0542	0.0352	0.0895
17	3,099	107	2,992	64	171			
18	2,992	107	2,885	62	169			
19	2,885	107	2,779	60	166			
20	2,779	107	2,672	57	164			
		427		243	670	0.0542	0.0308	0.0850
21	2,672	107	2,565	55	162			
22	2,565	107	2,458	53	160			
23	2,458	107	2,351	51	158			
24	2,351	107	2,244	49	155			
		427		207	635	0.0542	0.0263	0.0805
25	2,244	107	2,137	46	153			
26	2,137	107	2,030	44	151			
27	2,030	107	1,924	42	149			
28	1,924	107	1,817	40	147			
		427		172	599	0.0542	0.0218	0.0761
29	1,817	107	1,710	37	144			
30	1,710	107	1,603	35	142			
31	1,603	107	1,496	33	140			
32	1,496	107	1,389	31	138			
		427		137	564	0.0542	0.0173	0.0716
33	1,389	107	1,282	29	136			
34	1,282	107	1,176	26	133			
35	1,176	107	1,069	24	131			
36	1,069	107	962	22	129			
		427		101	529	0.0542	0.0129	0.0671
37	962	107	855	20	127			
38	855	107	748	18	125			
39	748	107	641	15	122			
40	641	107	534.33	13	120			
		427		66	494	0.0542	0.0084	0.0626
41	534	107	427	11	118			
42	427	107	321	9	116			
43	321	107	214	7	113			
44	214	107	107	4	111			
		427		31	458	0.0542	0.0039	0.0582
45	107	107	- 0	2	109			
46					-			
47					-			
48					-			
		107	- 0	2	109	0.0136	0.0003	0.0138

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

K-Electric
BPQS-III
Amortisation Schedule of Transaction Cost

Total Transaction Cost Paid (Rs.	1,554	Hermes (US$/Annum)	18,953	Hermes (Rs. Mil/Annum)	5.44
Cost Capitalized in RAB (Rs. M	(518)	Sinosure (US$/Annum)	18,953	Sinosure (Rs. Mil/Annum)	5.44
Net Transaction Cost (Rs. Mil	1,036	Local Loan (US$/Annum)	-	Local Loan (Rs. Mil/Annum)	1.00
KIBOR	22.91%	**Total (US$/Annum)**	37,906	**Total Rs. Mil/Annum)**	12
Period (Years)	11				
Ref Ex Rate (Rs./US$)	287.10				

Quarters	Principal (Rs. Mil)			Interest	Total	Repayment	Interest	Recurring	Total
	Opening	Repayment	Balance	Rs. (Mil)	Rs. (Mil)	(Rs./kW/h)	(Rs./kW/h)	Cost	(Rs./kW/h)
1	1,036	6	1,030	59	65				
2	1,030	6	1,025	59	65				
3	1,025	6	1,018	59	65				
4	1,018	7	1,012	58	65				
		24		**235**	**260**	**0.0031**	**0.0299**	**0.0015**	**0.0345**
5	1,012	7	1,005	58	65				
6	1,005	7	997	58	65				
7	997	8	989	57	65				
8	989	8	981	57	65				
		30		**229**	**260**	**0.0039**	**0.0291**	**0.0015**	**0.0345**
9	981	9	972	56	65				
10	972	9	963	56	65				
11	963	10	953	55	65				
12	953	10	943	55	65				
		38		**222**	**260**	**0.0048**	**0.0281**	**0.0015**	**0.0345**
13	943	11	932	54	65				
14	932	12	921	53	65				
15	921	12	908	53	65				
16	908	13	895	52	65				
		48		**212**	**260**	**0.0060**	**0.0269**	**0.0015**	**0.0345**
17	895	14	882	51	65				
18	882	14	867	51	65				
19	867	15	852	50	65				
20	852	16	836	49	65				
		59		**200**	**260**	**0.0075**	**0.0254**	**0.0015**	**0.0345**
21	836	17	819	48	65				
22	819	18	801	47	65				
23	801	19	782	46	65				
24	782	20	762	45	65				
		74		**185**	**260**	**0.0094**	**0.0235**	**0.0015**	**0.0345**
25	762	21	740	44	65				
26	740	23	718	42	65				
27	718	24	694	41	65				
28	694	25	669	40	65				
		93		**167**	**260**	**0.0118**	**0.0212**	**0.0015**	**0.0345**
29	669	27	642	38	65				
30	642	28	614	37	65				
31	614	30	584	35	65				
32	584	31	553	33	65				
		116		**144**	**260**	**0.0147**	**0.0182**	**0.0015**	**0.0345**
33	553	33	519	32	65				
34	519	35	484	30	65				
35	484	37	447	28	65				
36	447	39	408	26	65				
		145		**115**	**260**	**0.0184**	**0.0146**	**0.0015**	**0.0345**
37	408	42	366	23	65				
38	366	44	322	21	65				
39	322	46	276	18	65				
40	276	49	226.44	16	65				
		181		**79**	**260**	**0.0230**	**0.0100**	**0.0015**	**0.0345**
41	226	52	174	13	65				
42	174	55	120	10	65				
43	120	58	61	7	65				
44	61	61	0	4	65				
		226		**33**	**260**	**0.0287**	**0.0042**	**0.0015**	**0.0345**